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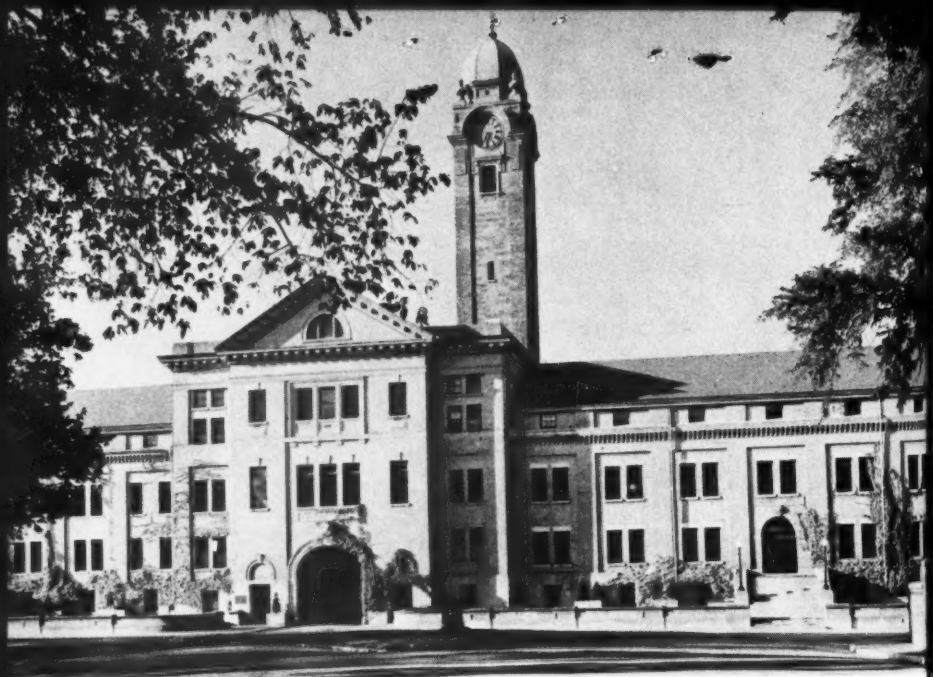


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TANKS AT NIGHT

Colonel Vernon G. Gilbert, *Artillery*
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Soldiers must be taught to move and fight at night. This is becoming more and more imperative, and it does not mean to make an approach march at night. It means to conduct lethal operations in the dark.—Lieutenant General George S. Patton, Jr.

THE average American tanker is not familiar with armored night attacks because our forces have seldom employed armor in this manner. This is reflected by the fact that our field manuals and other doctrine on the employment of armor at night is incomplete. Our outstanding tankers are noted for being strong-willed, out-spoken individuals, and perhaps these deficiencies are due to some extent to a great variance of opinion among them as to the methods of attacking at night with armor. Nevertheless, the gaps in doctrine must be filled, and field units should be required to conduct intensive night training.

The shortness of the training day in northern latitudes requires other countries, such as the Soviet Union, to train their armored units in darkness as well as during daylight hours. Therefore, in the event of another major war, we can expect armor to be used against us during both day and night. Moreover, there is a strong probability that we might have to operate against an enemy possessing air superiority. In such a situation we would receive fewer casualties from enemy air action by resorting to night operations.

Although the need for complete doctrine

and practical training exists, night attacks with armor are not second nature to the American tanker because they have been seldom used. In the few instances where armored night attacks were properly planned and aggressively executed in World War II, they met with noteworthy success, but the average tanker usually gives a negative answer when asked about the advisability of using tanks offensively at night. A lack of assurance is understandable; man is naturally afraid of the dark. Moreover, there are disadvantages and difficulties to be encountered in using tanks at night, as every tanker knows. These difficulties can be overcome, and armored units can acquire confidence and belief in their ability to conduct a night attack *through intensive training*.

Disadvantages

There are, admittedly, disadvantages in the use of tanks in a night offensive operation. Tanks are more difficult to lead and control than infantry. After a night engagement, tank crews would be physically worn out for the next day's mission. At night, there is a loss in fire power because of the decrease in the effectiveness of aimed fire. Concurrently, there is an increase in the capability of

Tank attacks at night offer two major advantages: protection from enemy aircraft and long-range antitank weapons and a great increase in the effect of shock action induced by armor operating in darkness

enemy infantry to close with our attacking tanks. Movement and the maintenance of direction are difficult. Because of the noise created, surprise by stealth is practically impossible; surprise must be gained instead by speed in the execution of the attack. These disadvantages are inherent in armored night operations, but they can be overcome to some extent by the adoption of proper techniques and through realistic training.

Advantages

There are two major advantages to be gained from the employment of armor at night. A characteristic of armor is that it can produce shock action on an enemy. Darkness *increases* the psychological effect of shock action. In addition, darkness offers our tanks protection from the long-range fires of the enemy's antitank weapons.

We should reap the benefits to be gained from these advantages whenever suitable reasons exist for making an armored night attack.

Purposes of a Night Attack

Any of several good purposes for making a night attack with armor could exist in a tactical situation. The most prominent reasons include the following:

1. *To avoid heavy losses which would result in a day attack by taking advantage of the concealment provided by darkness.* Operations which illustrate this purpose for making an armored night attack were conducted by the 2d Armored Division in the second phase of the Battle of the Bulge. To quote Major General Ernest N. Harmon (Retired), the Commanding General, 2d Armored Division:

The snow was deep, which slowed our tanks down to about 3 or 4 miles an hour. We were attacking towns built of masonry in which the enemy had placed his tanks with the muzzles protruding out of the windows. The towns were on a slight elevation from the surrounding country,

therefore, our attack had to go uphill and we were picked off as there was anywhere from 1,200 to 2,000 yards of open fields. By lining up the night before and carefully getting the direction angles, we attacked at about five o'clock in the morning during the month of January in a swirling snow storm in complete blackness. We managed by this method to get up to the town and in among the buildings covering the fire-swept zone in pitch darkness. We captured the towns of Devontree, Dochamps, and Samree by this night attack method. Our losses were practically negligible. By daylight we had captured the towns.

It was necessary at that time for the division to adopt measures to avoid losses because the infantry units were depleted in strength as a result of cold injuries and other casualties. In these operations, the 2d Armored Division was able to avoid heavy losses by taking advantage of the concealment provided by darkness and weather.

2. *To gain a limited objective.* An example of a limited objective might be a terrain feature vital for launching a co-ordinated daylight attack, such as a close-in hill, which the enemy is using for observation, and which could afford him detection of our main attack before it is launched. Such an objective should be seized before the main attack is launched. The objective for a night armored attack must be close in (not much over 2,000 yards) and must be a well-defined feature. We pointed out earlier in this article that control and direction are difficult to maintain for armor attacking at night. If a deep objective is selected (one several miles away), we risk loss of control and direction, and will probably arrive on the objective with only a part of our force.

3. *To exert continuous pressure on the enemy, maintaining the momentum of the attack to prevent him from reorganizing or seizing the initiative.* A successful night attack can push the enemy off balance and keep him from organizing a defensive position, a position which an

attack the following morning would have difficulty in outflanking or penetrating. The initiative, once seized from the enemy, should be maintained by operations around the clock if necessary.

4. *To achieve surprise and gain psychological superiority.* Our tactics should never become stereotyped. After a series of daylight armored actions, a night attack under favorable conditions would enable us to gain surprise and would assist us in gaining psychological superiority over the enemy.

5. *To accomplish the primary purpose of offensive action—the destruction of hostile armed forces.* This, of course, is the purpose of all forms of offensive action.

Favorable Conditions

Of course any decision concerning the use of tanks at night depends on the situation. The presence of certain conditions in any specific situation will definitely favor a night attack by armor. Conversely, the absence of these conditions will discourage the use of tanks at night. An armored commander, faced with a situation which presents the following factors, should favorably consider ordering a night tank attack:

1. *The presence of a well-defined limited objective, the seizure of which conforms to the mission of the command.* Examples of such an objective are hill masses, crossroads, small villages, and clumps of trees. The objective selected must be readily discernible, and should be close enough to the line of departure for easy maintenance of direction and continuous support by previously sited automatic weapons, mortars, and artillery.

2. *Terrain favorable to the use of armor with good routes available, or a well-defined direction of attack (or axis of advance) to the objective.* The terrain from the line of departure to the objective should be such that it can be crossed

easily by tanks. This condition is improved if there are good roads available for use, or if there is a well-defined cross-country route which the tanks can follow in their night movement to the objective.

3. *An enemy so disorganized that he will be unable to interfere with the success of our attack.* When the enemy is so disorganized that he can do little to react to our night attack, it is imperative that we continue our operations to maintain the initiative. Under such conditions, the enemy must be allowed no rest or time to reorganize. Such an enemy situation very definitely favors continuation of the attack by a night operation.

Night armored attacks have been executed, however, against strongly organized enemy positions. For example, the British and Canadians, in August 1944, planned and executed a highly successful armored night attack against a strongly organized German defense position south of Caen (Operation *Totalize*). This operation is so unique in its originality that it will be discussed in more detail later in this article. The operation is mentioned here to point out that a disorganized enemy is not a prerequisite to the employment of armor in a night attack.

4. *Adequate time remaining for daylight reconnaissance and detailed planning by all echelons.* All subordinate commanders involved in the attack down to tank commanders and infantry squad leaders should make a reconnaissance of the area to be covered in the attack from ground observation, to become familiar with the terrain. It is desirable that the tank crewmen have an opportunity to see the terrain as well. These subordinates should be briefed on the details of the operation on the terrain they will cover in the attack. When the senior commander makes his decision, he must allow adequate time for reconnaissance before the time of the attack. The essential preparations include the dissemination of

detailed plans, including detailed plans for the distribution of fires, down to every single man participating in the attack. Time is required to establish coordination with the participating infantry units. Infantrymen will complete the seizure of the objective and outpost the tanks when the objective is consolidated. Major General Terry Allen (Retired) emphasized preparations in one of his recent talks:

Preparation for night attacks must be based on careful planning and detailed reconnaissance (intensive day and night reconnaissance is continued up to the hour of attack). The commander's decision to attack should be made while there is still sufficient daylight for preliminary reconnaissance and other necessary preparations. Brief warning orders must be issued promptly, to provide maximum time for detailed reconnaissance.

5. *Ability of supporting units to provide fire support.* Although an artillery preparation is not essential for every night attack, one should be fired before an armored night attack, because surprise by stealth is almost impossible. Even though fire support is not required for an attack to seize an objective, supporting fires should still be available for the defense of the objective after seizure.

Operation 'Totalize'

Experienced tankers, after reading this far, will probably agree that with the foregoing five conditions present in a given situation, they either could or would make a night tank attack. An armored attack at night is possible, however, even under some unfavorable conditions. To prove this point, let us look at a historical example: Operation *Totalize*.

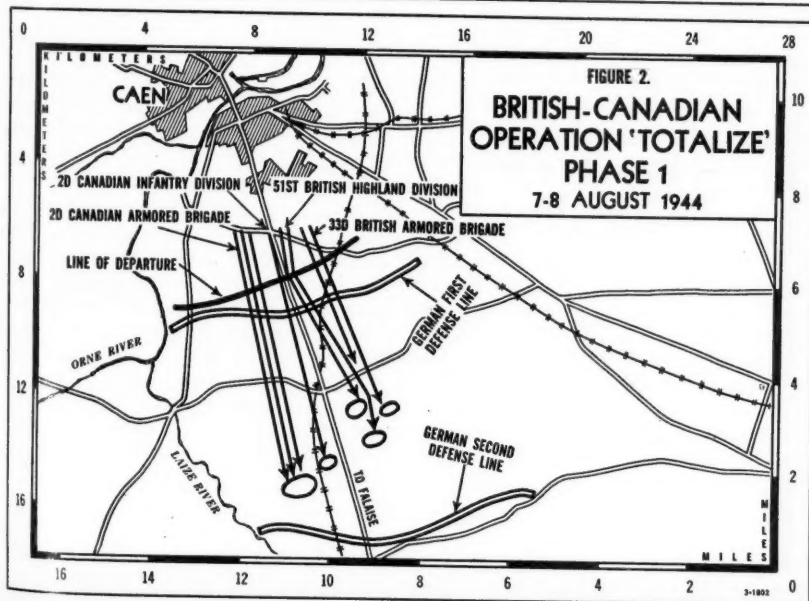
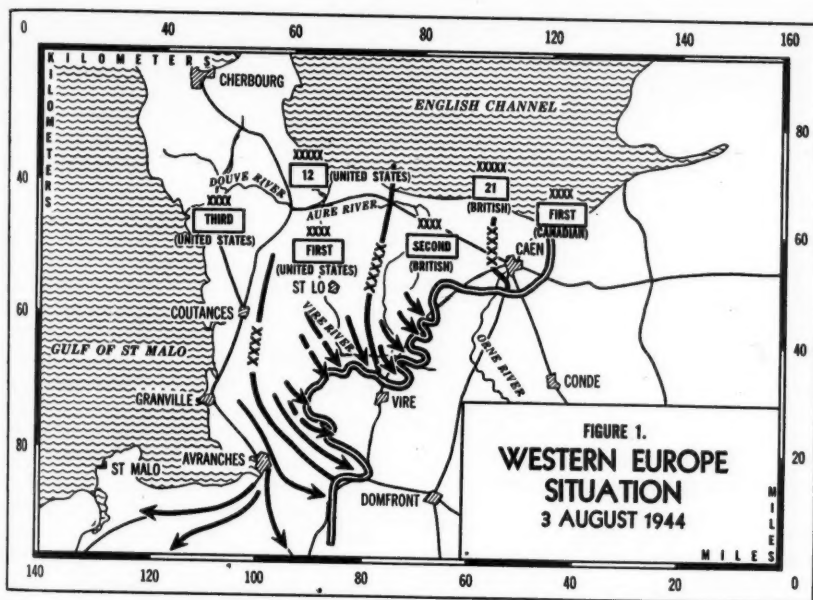
Operation *Totalize* was planned and executed by the Canadian II Corps of the Canadian First Army, part of the 21st Army Group. The action took place in early August 1944, in western France, in the area between Caen and Falaise. The operation plan was ingenious and daring in its originality and concept.

The general situation at the time planning for Operation *Totalize* was initiated is shown in Figure 1.

The purpose of *Totalize* was to break through the German defenses south of Caen and exploit as far as Falaise. The advance of the II Corps was to form part of a northern pincer in the allied encircling movement which terminated at the end of August in the Falaise pocket. The Germans were holding very strongly in the Caen area. By early August, the British, attacking against stubborn opposition, had made but little progress to the south. The Germans held a strong defensive line about 3 miles south of Caen, across the Caen-Falaise highway. The flanks of this German line were protected by the Orne and Dives Rivers and by strongly organized villages. This first defense line was organized in depth and a second line had been constructed some 5 to 8 miles farther to the rear.

The German first line was organized in strong points centered on small elevations which dominated the open plains of the area. These defenses were manned by elements of the 12th SS Panzer Division, the 89th Infantry Division, and the 272d Infantry Division. Weapons to be contended with in the attack were some ninety 88-mm anti-aircraft guns sited in an anti-tank role, approximately sixty tanks (some dug in), large numbers of medium artillery and field guns, mortars, machine guns, and some self-propelled guns. This concentrated fire power made the German defenses formidable, to say the least.

Planning at corps level began on 1 August, and written instructions were given to the divisions on 2 August. H-hour was 072330 August. The divisions were given ample time for planning and reconnaissance and even conducted rehearsals in rear areas on terrain similar to the area of the planned operation. Essentially, the



corps plan is summarized by these three points:

1. The attack would be at night.
2. The attack would be co-ordinated with an artillery barrage and heavy bombing on strongly defended areas on the flanks of the penetration.
3. The infantry was to be mounted in armored vehicles and moved with tanks in the dark across the open plain, bypassing all resistance until its arrival near the assigned objective. Bypassed enemy troops would be mopped up, beginning at daylight, by infantry units which would follow on foot.

The attack was made in a direction parallel to the main Caen-Falaise highway. The assault force to the west of the highway was composed of units from the Canadian 2d Infantry Division and the Canadian 2d Armored Brigade. The assault force to the east of the highway was from the British 51st Highland Division and the British 33d Armored Brigade. The infantry of both divisions in the night attack force traveled in armored half-tracks, stripped medium tanks, and 105-mm self-propelled howitzer carriages with the howitzer removed.

As shown in Figure 2, the assault forces traveled in eight columns. Each column had four vehicles abreast for the entire length of the column, with a 1-yard lateral interval between vehicles, and a distance of from 2 to 3 yards from head to tail between vehicles in column. Each column consisted of approximately 200 armored vehicles and 1,900 men. The organization of each column differed slightly, but the following typical order of march, beginning at the head of the column, will suffice to illustrate the line-up:

Tanks equipped with navigational devices.

Tanks equipped with flails.

Engineer armored vehicles.

Tank and infantry units.

Navigational aids used to assist in maintaining direction included directional radio, Bofors guns firing tracers, searchlights creating artificial moonlight, and magnetic compasses.

We have described only Phase I of Operation *Totalize*, for the remaining phases were daylight actions and have no place here. It is sufficient to say, concerning Phase I of the operation, that the careful planning and rehearsals paid off.

As stated previously, H-hour was 072330 August. The objectives were from 4 to 5 miles south of the line of departure. By 080600 August, all units in the night attack were dug in on their assigned objectives. Operation *Totalize* definitely proved that armored vehicles can conduct night attacks with successful results, even against strong enemy opposition. The number of casualties in the Canadian division are not available, however, the 51st Highland Division suffered only 250 personnel casualties and lost but a few tanks. The losses in a daylight attack would have been much higher.

In conclusion let us state briefly that tanks *can* enter into night attacks. The fundamentals required are: *intensive training* to instill confidence and proficiency, detailed *reconnaissance*, careful *preparation*, and skill in maintaining *direction* and *control*, combined with *surprise* and *vigor* in execution, in crossing over *favorable terrain* to seize a *limited objective*.

The skillful use of night attacks indicates smart, aggressive leadership. Night attacks will frequently attain difficult limited objectives with comparatively few casualties. Attacking troops must be highly trained and imbued with a determination to close with the enemy and destroy him.—Major General Terry Allen.

THE LOST CORPS

Lieutenant Colonel Robert C. Cameron, *Infantry*
Instructor, Command and General Staff College

ON THE morning of 27 November 1950, one of this country's well-known radio news commentators in describing the fury of the Chinese Communist Forces' (CCF) offensive in Korea stated substantially:

"The Republic of Korea Army's (ROK) II Corps has disintegrated. It has ceased to exist, completely disappeared, and no trace of any of its units can be found."

Careful examination of this statement reveals a certain degree of journalistic inaccuracy and exaggeration. However, the fact remains that an entire corps had been so thoroughly defeated that it ceased to exist as a force of any military consequence. The transformation to impotency of this three-division corps, in the process of conducting a full-scale offensive, had been affected in a period of less than 24 hours.

This action was the first large-scale assault conducted by the CCF in the Korean theater. It marked the prelude to the all-out Communist counteroffensive which forced the withdrawal of United Nations forces to a line far south of the 38th Parallel, and for a time threatened their ability to maintain even a foothold on the Korean Peninsula. It also furnished the first opportunity for a careful evaluation of large-unit tactics and doctrine as employed by a Communist army in modern battle.

What were the underlying causes for this major defeat? How were the Chinese

Communist Forces able to maneuver so as to trap and destroy a complete corps within 24 hours? The answers to these questions furnish the incentive for a careful analysis and study of this action. In view of current and possible future activity in Korea, a clear understanding of this operation should prove a valuable asset to any troop commander. The tactics employed by the CCF in destroying the ROK II Corps are not unique. Rather, they tend to typify methods used by the Communists throughout the Korean campaign.

ROK Army Background

Before considering the action of the ROK II Corps during the last week of November 1950, it may be desirable to consider, briefly, the background of the units that composed this corps. History, of course, has dealt harshly with the Korean people during their more than 5,000 years of civilization. Their peninsula has been subjected to repeated invasions and periods of occupation. The most recent invasion being by the Japanese which resulted in some 40 years of occupation and which was terminated by the defeat of Japan at the conclusion of World War II. During the long period of their occupation the Japanese took great pains to prevent leadership from developing among the Korean people. All positions of even limited responsibility in industry, government, and education were filled by Japanese nationals. Educa-

The elimination of the ROK II Corps by the Chinese forces in November 1950 was not the result of magic or the employment of new tactics but the expert application of proved tactics by the Chinese

tion, above the very basic level, was restricted to those possessing outstanding qualifications who were selected as acceptable by the authorities. Outstanding individuals were also taken into the Japanese armed forces, but their advancement was generally restricted to the non-commissioned ranks with a small handful achieving the lower commissioned grades.

After the cessation of hostilities in 1945 and the failure of diplomatic effort to create a unified Korea, it was evident that some sort of a military establishment was essential if the newly formed Republic of Korea were to exist along with the growing militarism displayed by the Communist government of North Korea. Using the few individuals with military training as a nucleus, the United States Army organized a *constabulary force* as a forerunner to a complete army in 1946. By 25 June 1950, when the North Koreans initiated their sneak attack, this force had been expanded to an army of eight divisions, four of which, including the 6th, 7th, and 8th Divisions, were deployed along the 38th Parallel.

North Koreans Attack

The initial surprise and overwhelming mass achieved by the North Koreans in their attack inflicted tremendous losses and caused an almost complete breakdown of command and logistical control for the South Korean Army. Despite this seemingly insurmountable obstacle, the numerical superiority of the Communist troops, and the shortage of transportation and communication equipment, the 6th and 8th Divisions were able to maintain complete unit integrity at all times and fight a competent delaying action throughout their withdrawal to the Pusan perimeter, abandoning positions only on direction of higher headquarters. The 7th Division, originally disposed astride the Uijongbu corridor, the traditional invasion route to Seoul, bore the brunt of the

main effort of the North Korean attack. This division defended with heroic determination, inflicting severe losses on the Communist forces. However, the overwhelming numerical superiority and the artillery and armor support of the invading army, coupled with the premature blowing of the Seoul bridge, caused the virtual annihilation of the 7th Division north of the Han River. The few individuals who managed to escape to the south were kept together to preserve the division name. Replacement fillers and equipment were not available for the reorganization of the unit until late August 1950.

General Situation

During September 1950, the successful defense of the Pusan perimeter was terminated by the Eighth Army's break-out and counteroffensive to the north. By 1 October, United Nations forces had retaken all of South Korea and launched attacks across the 38th Parallel to eliminate the Communist hold on North Korea and make possible unification of this country under a truly representative government. The formation for this advance included the United States I Corps along the west coast, the ROK II Corps in the central mountains, and the ROK I Corps along the east coast. During the last week of October, the United States X Corps landed on the east coast at Wonsan and assumed control of that sector. The ROK I Corps was transferred from the Eighth Army to the X Corps, an independent command, operating to the east of the Eighth Army. The advance of all units was almost unrestricted. North Korean forces were able to present only sporadic and scattered resistance. By 26 October, the ROK 6th Division's 7th Regiment, a part of the ROK II Corps, had reached the Manchurian border at the Yalu River town of Chosan.

By 1 November, the situation had taken on a much darker aspect. Communist units

in superior strength had ambushed and inflicted serious losses on the 2d and 19th Regiments of the ROK 6th Division and the 10th Regiment of the ROK 8th Division, all of the ROK II Corps. The 7th Regiment of the ROK 6th Division had been cut off on the Yalu River and completely annihilated with the exception of approximately 300 individuals who were able to escape by filtering through Communist lines. On-the-spot interrogation of prisoners of war and recaptured South Korean soldiers immediately established that this revitalized Communist force was made up of Chinese Communist Army units that had recently entered Korea with the mission of driving United Nations forces into the sea.

A New Threat

This new threat posed a much more serious problem than had been anticipated for the advance to the Yalu River. The Eighth Army took immediate steps to cope with the new situation. Forward elements were withdrawn to a line generally along the Chongchon River. The United States IX Corps was ordered into position directly east of the United States I Corps. The ROK II Corps was moved south and east, to extend the organized front to the vicinity of Tokchon with strong blocking positions on the extreme right flank of the Eighth Army in the vicinity of Maengsan.

The ROK II Corps occupied its new positions with very little difficulty except at Tokchon. This town, situated on the north bank of the Taedong River, is dominated by a single cone-shaped, cave-infested hill, that was soon known as the "honey comb." The 8th Division of the ROK II Corps committed the 16th and 21st Regiments in an effort to take Tokchon and the hill controlling the north bank of the Taedong River.

The Chinese had occupied this area in force and their attitude gave every indication of their intention to stay. For eight

consecutive days, elements of the ROK 8th Division blasted their way to the crest of "honey comb" hill only to be forced back by daring and skillful night attacks, which characterized the Chinese Communist Forces throughout their first campaigns north of the 38th Parallel. After 8 days and nights of trading "honey comb" hill, the Chinese force withdrew from the immediate vicinity of Tokchon. The disposition of the ROK II Corps on 14 November is shown in Figure 1.

II Corps Disposition

The 10th Regiment of the ROK 8th Division occupied a blocking position and patrol base on the extreme east flank of the Eighth Army. Patrols were dispatched from this location in all directions and their findings revealed a steady flow of guerrilla bands moving around the open flank. These groups, allegedly, consisted of former North Korean army personnel, individuals recently recruited, and, usually, one or two Chinese leaders. The 10th Regiment also dispatched a contact patrol of platoon strength to locate west flank elements of the United States X Corps on the east coast. This foot patrol engaged in several small skirmishes but managed to cover the 45-mile gap, contact elements of the United States 3d Division, and return to Maengsan in a period of 10 days.

Preparations for the Offensive

On 18 November, the boundaries of the ROK II Corps were shifted to the east for the second time. The United States IX Corps was ordered to relieve the ROK 6th and 7th Divisions. The ROK 7th Division was required to displace to the east and relieve elements of the ROK 8th Division north and east of Tokchon. The ROK 8th Division was ordered to occupy new positions north and east of the town of Yongwon. The ROK 6th Division, still greatly reduced in personnel and combat efficiency because of its initial

encounter with the Chinese Communist Forces, reverted to corps reserve. These changes in dispositions were affected without incident except for a minor difficulty experienced in establishing contact along the boundary between the 7th and 8th Divisions. The Chinese opposed the advances with token elements, that gave ground readily when pressed, however, they maintained constant contact. The ROK II Corps was set for the all-out offensive to the Yalu River. The disposition of the ROK II Corps on 22 November is shown in Figure 2.

The ROK II Corps

By this time the ROK II Corps consisted of only three divisions, each with a creditable combat record. These units, however, were not at their maximum combat effectiveness. As a result of the Yalu River fighting of a month earlier, the 6th Division was operating with two understrength and somewhat demoralized regiments, and one skeleton regiment. The 7th Division, although well equipped and up to full strength, had had only limited combat experience since reorganization. On the other hand, the 8th Division was in excellent condition—fully manned, well equipped, and ready for action. In considering the combat effectiveness of the ROK units in late 1950, it should be remembered that these were extremely light units. These divisions contained only a small fraction of the number of mortars and machine guns associated with a United States infantry division. The artillery component was limited to one light battalion and there were no armored elements. A fully manned ROK division numbered only 12,000 men. In addition, no reinforcing artillery or other combat units were available under corps control. These facts afford a clear picture of the corps that, on one of the world's most rugged battlefields, attacked to its destruction.

On 23 November 1950, a large guerrilla force of approximately 1,500 attacked the town of Songchon, located on the II Corps main supply route, 50 miles south of the corps command post. This attack succeeded in blocking the supply route and destroying ammunition dumps and field hospitals that had been established by the South Korean Army within that area. In order to eliminate this threat to its rear and re-establish a vital supply link, the ROK II Corps dispatched the 19th Regiment of the 6th Division to the Songchon area. This move reduced the corps reserve to the 2d and 7th Regiments of the 6th Division (the 2d Regiment being the only effective unit—this regiment was located in the Tokchon area and was retained directly under corps control).

The Attack

At 241000 November, the ROK II Corps, under Eighth Army direction, launched an attack that was designed to reach the frozen banks of the Yalu River. The initial formation for the attack was orthodox—although it covered quite an extended frontage. It involved two divisions in the assault—each of which committed two regiments. First contact across the entire front was about as expected—small Chinese screening forces opposed the advance but readily gave ground when pressed. This easy progress continued for approximately 2 hours.

ROKs Halted

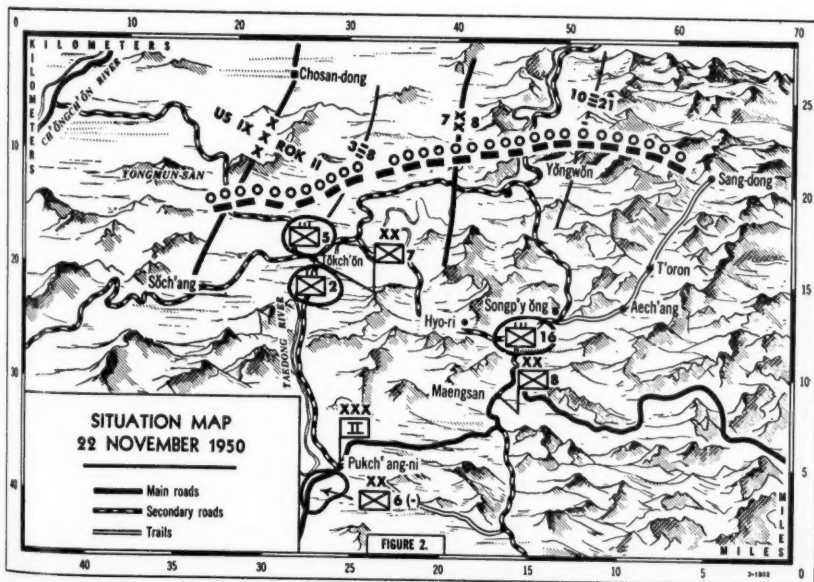
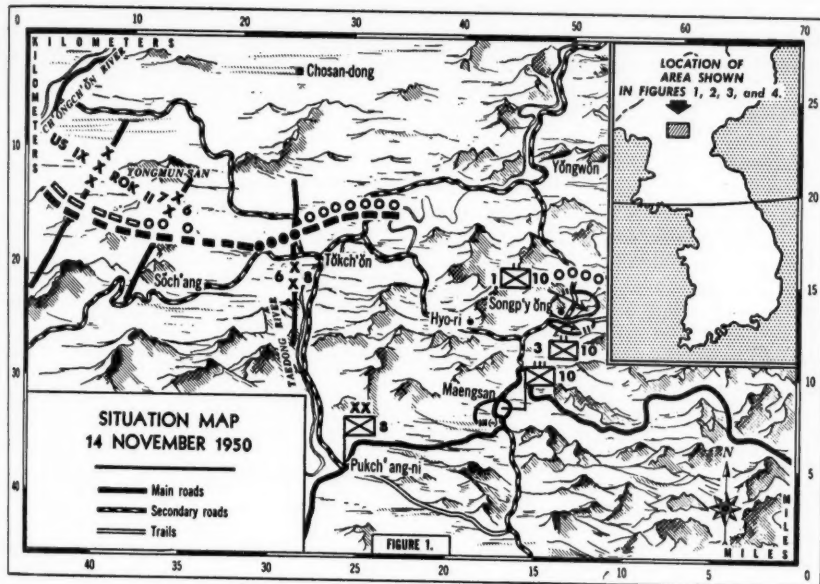
After advancing about 1,000 yards over extremely difficult mountainous terrain, the 10th and 21st Regiments of the 8th Division and the 8th Regiment of the 7th Division were abruptly stopped by extremely heavy fire from dominating positions, which were protected by sheer rock cliffs. Assault after assault failed to dislodge the Chinese from these rocky crests. When the attack was halted for the night, the three regiments were still firmly

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THE LOST CORPS



stopped on a general line, somewhat, parallel to and approximately 1,000 yards in front of their original positions.

The peculiar aspect of this first day of the general offensive was the relative ease with which the major portion of the Eighth Army had advanced. The United States I and IX Corps to the west of the ROK II Corps and the 3d Regiment of the 7th Division, which was the west flank regiment of the ROK II Corps, had met with little or no resistance. The rugged terrain, rather than the enemy, had limited the progress in their portion of the zone. On the other hand, the three east regiments of the ROK II Corps were opposed strongly from boundary to boundary. Their progress was halted just as abruptly by the determined enemy resistance as it would have been by a restraining order issued by higher headquarters.

Offensive Resumed

On the morning of 25 November the offensive was again resumed, but without success. The unhampered progress of the 3d Regiment, coupled with the failure of other ROK II Corps units to gain any ground, created a serious north-south gap in the center of the 7th Division zone. In order to maintain contact and to avoid the possibility of a sudden enemy thrust cutting off his rapidly advancing 3d Regiment, the 7th Division commander committed portions of his reserve regiment to fill this gap as it appeared. By early afternoon on 25 November, the entire 5th Regiment had been committed in this fashion. It was planned that this unit would attack on the morning of 26 November and break the crust that had stopped the advance of the 8th Regiment.

By late afternoon on 25 November, the build-up of resistance was beginning to evidence itself farther to the west. The ROK 3d Regiment and units of the United States IX Corps were meeting determined

resistance from small Chinese Communist Forces units. However, still farther to the west, the United States I Corps continued to advance with virtually no opposition.

Chinese Take the Initiative

At about 251700 November, just as the last light of a cold winter day was passing into darkness, a Chinese Communist Forces mass attack struck the ROK positions, with the suddenness of a bolt of lightning. The main effort of this narrow front penetration was centered along the boundary between the ROK 7th and 8th Divisions. The complete accuracy of the penetration attested to its expert direction. The initial assault overran positions occupied by a company of the 8th Regiment and a company of the 10th Regiment. This created a gap of approximately 1,000 yards and afforded the Chinese strong defensive terrain situated in the very center of the ROK II Corps position.

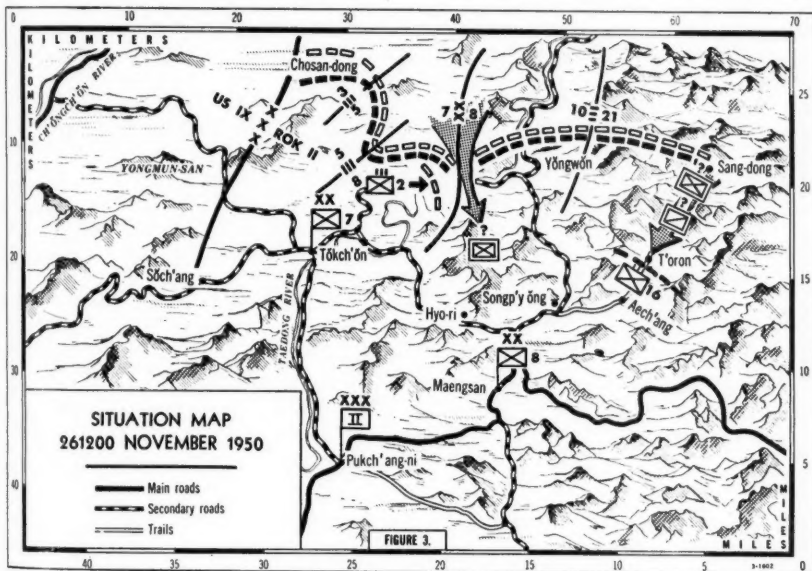
The battalion commanders occupying the penetrated area attempted to restore contact by committing their local reserve in a night attack. However, this was to no avail as the Chinese were in firmly and intended to stay. The regimental commanders of the 8th and 10th Regiments refused to accept the risks involved in committing their reserve battalions to a 5,000-yard approach march and night attack without prior reconnaissance in this rugged mountain terrain. However, each commander positioned his reserve in such a way as to refuse his flank and thereby minimize the danger of an envelopment.

During the night of 25-26 November, the Chinese Communist Forces made no additional move against either the 7th or 8th Divisions. ROK patrols ascertained, however, that a considerable force had passed through the gap and was operating in the rear areas. A patrol of the 10th Regiment picked up a civilian who reported that a Chinese unit of approxi-

mately 500 men forced him to guide them from a point north of the line of contact to an isolated mountain village 3 miles south of the battle positions.

The Commanding General, ROK II Corps, was not aware of the seriousness of this situation until midnight of 25 November. This delay was due, in large measure, to a combination of the inadequacy of ROK communications coupled with an

his reserve, the 16th Regiment, to patrol the area south of the penetration and to find and destroy any Chinese or North Korean elements operating within that area. In order to appreciate the magnitude of the last order, a clear understanding of the great distances involved, the complete absence of roads, and the extreme ruggedness of the terrain is essential. This was a task involving a most difficult type



inherent reluctance on the part of Korean subordinates to report unfavorable developments. Once apprised of the true picture, the II Corps commander took immediate steps to alleviate the situation. The 2d Regiment, located at Tokchon, was the only corps reserve available in the area. It was released to the Commanding General, 7th Division, with instructions that it be dispatched without delay to attack and seal the gap between the 8th and 10th Regiments. Further, the corps commander instructed the 8th Division commander to employ a sufficient portion of

of combat operation and one that could be completed not in hours, but in weeks.

The Chinese High Command had plans that conflicted with those of the II Corps, however, and they were to prevail. The advancing 2d Regiment was met and effectively blocked along the Tokchon-Yongwon road, approximately 3 miles short of its objective. It was destined to advance no farther. Daylight patrolling and aerial reconnaissance revealed that the 21st Regiment's, as well as the Eighth Army's, east flank was being enveloped by Chinese horse cavalry and infantry units. This

Chinese force, estimated at regimental strength, was advancing along the Sang-dong-Aechang road which was well in rear of all combat installations. The 16th Regiment was immediately released from its patrolling mission and dispatched to counter this new threat. Initial contact was made approximately 5 miles north of the village of Toron.

Attempts by the 16th Regiment to drive the Communists back to the north were unsuccessful and it was soon evident that the best that could be expected was to check this force before it threatened the vital road net in the rear of the battle position. The 16th Regiment assumed the defensive, but was forced, in the face of superior forces, to initiate a slow but steady withdrawal that continued throughout the day.

The attempted advance of the ROK II Corps was suspended throughout 26 November while an effort was made to stabilize the front. However, all units were strongly opposed by a solid band of Chinese defensive positions which extended well into the United States IX Corps zone to the east. The situation at 261200 November is shown in Figure 3.

Night Offensive

The night of 26 November 1950 was cold and clear. A full, bright moon came up early, filling the countryside with a glow that made close-range visibility extremely good. This moon had been labeled a "Chinese moon" earlier, as the Chinese Army habitually favored such a setting for launching violent night operations. This night was no exception.

Since enemy elements were known to be roaming the hills in rear of the battle area, and since the Chinese penetration blocked the Tokchon-Yongwon road, it was essential that the Maengsan-Yongwon road be kept open at all costs. This was the only remaining supply and communications route to the eastern portion

of the corps front. In anticipation of a possible Chinese Communist Forces effort in this direction and to refuse further the western flank of the 8th Division, the reserve battalions of both the 10th and 21st Regiments were deployed in the mountains just west of this vital road link. With typical oriental optimism and a feeling that this was little more than rear area guard duty, these units built a number of fires to warm themselves in the bitter cold. This series of blinking lights, scattered throughout the countryside, did much to enhance the beauty of the night and also provided guiding lights which clearly outlined the occupied areas and pinpointed strong point locations for the Chinese Communist Forces.

The early part of the evening was quiet and peaceful, with no indication of the impending disaster. At 2100 hours, the entire corps front, covering a distance of 100 miles, erupted with a violence that had not been witnessed previously in the Korean conflict. The Chinese launched simultaneous attacks in overwhelming numbers against the front, flank, and rear of the 8th, 10th, 21st, 16th, and 2d Regiments. An effort was likewise made to eliminate the 3d and 5th Regiments by multiple penetrations and pincers. The Maengsan-Yongwon road was cut at the important junction near the town of Songpyong. Other Chinese Communist Forces elements blocked the Maengsan-Tokchon road at Hyo-ri. The Chinese established defensive positions throughout the area, oriented to the north, along stream beds and ridge lines so as to complete the destruction of the ROK units after they had been split into small groups by the fury of the initial attack. The Chinese Communist maneuvers are shown in Figure 4.

The ROK units had no effective defense against an attack of this magnitude. All units fought skillfully and determinedly. It has been ascertained that they were

Corps battle is the fact that several determined commanders were able to retain control of a group of from 100 to 200 of their men and fight their way back to friendly lines. This required traversing extremely mountainous terrain for a minimum distance of 50 miles and assaulting seven or more defensive positions which were oriented and organized for the sole purpose of combating tactics of this type.



By 271200 November, the Tokchon-Puch'ang-ni road had been blocked, briefly reopened, and then blocked again—never to be reopened. This sealed off the last escape route for the command post

A most unusual aspect of the ROK II

elements of the 7th Division and ended that phase of the operation. The Commanding General, ROK II Corps, was able to conduct a screening action with the handful of service units and the few available combat stragglers until a full-scale withdrawal could be initiated.

Conclusion

As stated at the outset of this discussion, the purpose of reviewing the described action was to determine the magic or unknown tactics which enabled the Chinese Communist Forces to eliminate an entire corps with a single decisive stroke. A careful analysis of the operation, however, reveals that neither magic nor new combat tactics were employed.

This victory resulted from the expert application of proved tactics and the principles of war.

The Chinese were outstanding in their ability to:

1. Concentrate overwhelming superior-

ity of mass in such a manner as to gain complete tactical surprise.

2. Apply the principle of economy of force by positioning their troops at a point of their own choosing while offering little resistance on other portions of the front.

3. Create an apparent enemy success in order to cause them to over-extend.

4. Employ guerrilla forces to the maximum in rear areas to effect a divergence of effort at the decisive moment.

5. Maintain constant and competent reconnaissance in order to reveal disposition weaknesses such as poorly co-ordinated boundaries or unpatrolled trails.

6. Employ extensive and multiple night attacks with deep objectives in order to seal off the battlefield.

7. Exploit success by establishing a series of strongly organized defense lines to destroy the remnants of the defeated force attempting to escape from the battlefield.

UNRESOLVED PROBLEMS OF ORDNANCE

The article entitled "Unresolved Problems of Ordnance," which appeared in the April 1953 issue of the *MILITARY REVIEW*, was in substance a chapter of the forthcoming volume in the series, *UNITED STATES ARMY IN WORLD WAR II: The Ordnance Department, Organization and Research and Development*. This article should not be reprinted without the permission of the Historical Division, Department of the Army, Washington, D. C.

The Editor

WHY FIGHT THE PROBLEM?

Lieutenant Colonel Joseph O. Gerot, *Infantry*
Instructor, Command and General Staff College

PRESSURE, tension, and graded examinations need not worry the prospective student of an Army service school, for such difficulties can be eliminated if the student is able to adjust himself to his new surroundings, develop an appreciation for his attendance at the school, and adapt himself to the school's program.

Roughly speaking, there are about five major reasons why a student encounters difficulty at an Army service school, namely:

1. A failure to comprehend the level at which he is studying.
2. A failure to appreciate why he is being schooled.
3. A divergence of ideas (generally the result of a seeming conflict between the doctrine taught at the school and the student's combat experience).
4. A lack of familiarity with Department of the Army publications which enunciate the fundamentals and doctrine taught at the school.
5. A lack of appreciation of the school curriculum.

The Army recognizes that there are certain difficulties inherent in any school of higher education, and has maintained continual studies and surveys to improve its educational program. In the majority of instances, these efforts have proved advantageous to the various service schools and have indicated that the fundamentals and doctrine taught are sound.

The students selected to attend a service

school are usually those considered best qualified for further military education. Therefore, they should have little difficulty in completing the courses satisfactorily, provided that they prepare themselves mentally for the academic work which they are about to undertake.

The purpose of this article is to assist prospective students of Army schools to undertake formal Army education with a broad and open mind, and to prepare them for the problems which they are likely to face as students.

During the first phase of instruction many students fail to comprehend the level at which they are studying, or fail to appreciate why they are being schooled. These difficulties are usually resolved as the student adapts himself to his new surroundings and develops an appreciation of why he is a student. Some students, however, continue to be confused—or rather, to fight the problem—until they find themselves in academic difficulties.

A divergence of ideas is another major source of confusion or difficulty encountered by students at an Army school. This, as has been pointed out, is generally the result of a conflict between the fundamentals and doctrine taught at the school and the student's own experience in combat. For example, an officer who has returned from Korea, and has experienced situations where a regiment has, through necessity, defended a sector some 38,000 yards wide, finds it rather confusing

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when a school problem states "that an infantry division can defend a 10,000-yard sector in a position defense," and that "this is the ideal maximum frontage." In explanation, the student must recognize that the school teaches fundamentals and doctrine, and that his combat experience



An American Army instructor explaining a field problem to an allied medical officer.

does not invalidate such fundamentals and doctrine, but illustrates how they are applied to particular situations.

The Army schools have based their instruction on the most recent and advanced accepted military doctrine and related knowledge. Therefore, it is incumbent upon the student to analyze and reconcile his personal experiences—when they seem to conflict with accepted fundamentals and doctrine—in order to gain the maximum benefit from classroom instruction.

Another difficulty which students encounter is a lack of familiarity with Department of the Army publications

which enunciate the fundamentals and doctrine taught at the schools. Most Army publications are written primarily as a guide, and with sufficient clarity and brevity that they may be adapted to almost any situation or theater of operations. It is not intended that these manuals be followed "blindly" in themselves in classroom instruction. Instead, it is intended that the subjects taught in the classroom be written in consonance with these accepted manuals. The various service schools also publish manuals which are designed to augment the Department of the Army manuals and assist students in interpreting doctrine. The student who uses these manuals and knows where to find information quickly when it is needed will have less difficulty in his studies than the student who is unfamiliar with them.

Some students complain that the schools overwork them, and that, in some instances, they actually issue more instructional material than the students can comprehend in the time allowed. While this may have been true in isolated cases in the past, every effort is made at the present time to ensure that the instruction is within the capabilities of the students and within the scope and missions of the various schools. With the proper utilization of the time allotted, students should have little difficulty in this regard. At the present time, Army schools exercise meticulous care so that students are not overworked and also are not required "to learn too much too fast," provided that the students are qualified initially to pursue the courses for which they are selected. It certainly is to the Army's advantage today to school as many qualified personnel as possible. It may, therefore, be deduced that the Army schools have an attitude of helpfulness and are desirous to "turn out as many trained, finished products as possible in their graduates."

In summary, "Why fight the problem?" Army school students have had difficulties

for a long time. It is not a new problem. The various Army schools recognize these student difficulties and have tried to assist in reducing them whenever and wherever possible. Sometimes these difficulties have been readily overcome with enviable results, while at other times the confusion gradually becomes a burden under which neither the student nor the

him and that pressure, tension, and competition among students initially affect all students alike.

3. Concede that the school teaches fundamentals and doctrine and that personal experiences are the application of these fundamentals and doctrine.

4. Be familiar with the applicable Department of the Army publications.



Officers working in a classroom at the Command and General Staff College. Students selected to attend a school are those considered qualified for further military education.

Army gains by his attendance at the particular school.

Army schools base their instruction on fundamentals and doctrine which may be applied to almost any given situation or theater of operations. Therefore, in order to attain the maximum results, personnel studying at an Army school should:

1. Be able to comprehend the level of instruction being offered at the particular school.

2. Realize that each student starts school with the same opportunity before

5. Accept and appreciate the school curriculum.

6. Know that it does not pay to fight the problem.

Although adherence to this list will not ensure graduation from an Army school, its use can certainly be an aid in starting the student in the right direction for successful completion of the academic year.

Students have been fighting the problem for years—the Army schools will continue to teach fundamentals and doctrine.

THE PRINCIPLES OF WAR

Vice Admiral Richard L. Conolly, *United States Navy*

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The views expressed in this article are the author's and are not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

THE "principles of war" have been distilled from the history and experience of warfare over a period of 2,500 years. It is possible that they may have been overdistilled. In number, they vary, as determined by the mental processes of the writer and his method of treatment. Sun Tzu, a very successful Chinese general, enunciated 13 principles in 500 B. C. Napoleon's maxims finally numbered 115. Clausewitz was satisfied with but seven. Nelson employed 10 tactical principles. The most usual list to be found is about as follows: *the objective, simplicity, co-operation, the offensive, maneuver, mass, economy of force, surprise, and security.* Almost without exception, all authors of lists of principles claim them to be immutable.

The United States Navy—alone of all major military services, American or foreign—does not accept officially the principles of war as such. They are not listed and no specific reference to them is made in the Navy's service publications.

Here, the attitude has been that they are permissible as maxims, precepts, factors, guides, or even basic considerations, but it is questioned whether they can be accepted as fundamental principles. Also, in view of the many differences in the

various lists, both in concept and number and by reason of the continuous doctoring of the principles themselves as to scope and interpretation, their *immutability* has been challenged.

Henceforth, the United States Navy will have to work with many other services, with the sister services of its own country and with the navies, armies, and air forces of allies. This condition has become commonplace in peacetime, now that the United States has permanent allies, and the associations between the allied services would be greatly increased in war. It, therefore, behooves American naval officers to acquaint themselves with these so-called principles and their inherent limitations, since other services deem them important.

Interpretation

What the principles mean to the student or practitioner of the art of war is determined by several considerations. Each person who uses them will, in the end, interpret and define them in the light of his own real or vicarious experience. The principles will mean the most to him who has both knowledge and experience. They are most dangerous in the hands of the ignorant and the unreflective. Rather than a ritual or cult, they seem to resemble an index, or one of the indexes, that can be used to file away one's knowledge of the military art. When adequately defined and developed they also can be used as one's military conscience, the tenets of which are not to be violated with impunity. They should not be used negatively, however, to dampen and restrain, but instead to stimulate and inspire thinking.

The reader cannot be warned too strongly against accepting this list of ab-

abstract nouns and phrases as condensations of principles. Their use as catchwords, slogans, or formulas for ready application to any and all problems is to be deplored. While each is supposed to constitute the epitome of a principle of war, each must be clearly and amply defined in the user's mind. They are the titles of the principles and not the principles themselves. Their indiscriminate use might even result in a failure to recognize the principles which they propose to represent. The predilection for reliance upon simple adages as a substitute for thinking is a very common human failing. It has led many a commander to defeat and disaster. So the principles must be defined very carefully, both in the abstract or theoretically, and practically. Their practical use should be illustrated and exemplified by situations familiar to the user.

Application

The applicability of these principles to all military problems will be questioned. They seem to have been designed originally for use in analyzing and solving tactical situations, but they can be, and have been, readily extended and adapted to problems of military strategy and to the realms of major and even of global strategy.

There will always be the problem as to how to adapt these principles for usage in modern warfare. It is impossible to

tactical techniques, new logistical methods and tools which are now available, and the marvels of modern production may accentuate certain of these principles and diminish the importance of others. For example, the rapidity of movement of forces and their essential equipment and supplies has increased enormously. This permits quick "concentrations" and promotes possibilities of strategic "surprise."

Principles Are Still Valid

The speed and range of the weapons themselves have greatly increased. With the application of atomic fission to the tools of war, there has been a sudden and radical increase in the fire power available in warfare. Unfortunately, the United States has no monopoly in this and must secure its vitals against the devastating effects of the enemy's atomic attack. This indicates the importance of "security," nation-wide. Realizing the necessity of protecting vital industrial centers and the potential for making war on a grand scale, very correctly the United States is in the process of spending billions on our continental air defense. It should be remembered that, in boxing parlance, the fighter with a knock-out punch but a glass jaw will never be a champion. In Korea we are fighting a limited war which does not fully illustrate the method and pattern of unlimited, modern, all-out warfare with

Each person who employs the principles of war will, in the end, interpret and define them in the light of his own experience. The principles will mean the most to the person who has both knowledge and experience

prescribe the method. Everyone must do that for himself, in the light of his own modern knowledge and recent experience. They should be carefully dealt with or we will find ourselves tampering with their immutability, which is their greatest claim to virtue.

New developments in weapons, new tac-

no weapons barred and unrestricted as to scope and geography. Here are two unusual cases that must be dealt with, using meticulous care and restraint. When one applies the principles to a concept of future warfare, although the style in weapons may change, the battle area be greatly enlarged, and the speeds of weap-

ons and their vehicles much increased, the principles are still valid. Final success may well rest with the side that has really interpreted them correctly and applied them effectively.

So much for the preamble. Now the principles each in turn will be considered. We shall confine ourselves primarily to the classic list already enumerated. We shall deal also in some cases with what various authors have to say about them. Finally, a new list of titles with amplification by definition and example will be proposed.

The Objective

Overzealous disciples of Clausewitz erroneously deduced that the destruction of the enemy's armed forces is the end objective of the military operations of the nation at war. Later the thought was developed that by such means the enemy's will to fight would be destroyed. Such thinking has been prevalent among the military and during wars became dominant in the formulation of national policy. Recently there has been general acceptance of the idea that the ultimate aim is to break the enemy's will to fight, whether this is accomplished by the destruction of his armed forces or by other means more quickly and easily accomplished and which might in the end serve the victor's purposes better. Authorities also now agree that once the aim is decided all efforts must be shaped toward its attainment, unless or until the changed situation demands a re-estimate and perhaps the development of a new objective. It is well understood that each phase of the war and each campaign must have a more limited and subordinate aim which will, however, contribute directly toward attaining the supreme objective.

The Master Principle

The objective has also been defined as the mission, aim, or purpose of one's efforts. It should not be confused with

a *physical objective*, which may, however, be the point upon which the aim is focused. In most cases those who deal with these principles have considered that the principle of the *objective* should be regarded as the master principle, that the other principles merely support the attainment of this master principle, and that their relative importance will vary according to the character of the situation under consideration. Although it has been maintained erroneously that the true objective is always the complete destruction of the enemy's armed forces, this might sometimes be a misleading concept for the lower echelons of command, and it is certainly far too limited in its scope to encompass the *objective* of the whole armed forces of the nation. For example, in the First Dutch War (1652-54), without an enemy setting foot on her soil and her army entirely undefeated, Holland sued for peace. In World War II, Japan, under almost similar circumstances, did the same.

The United States has an agency which is charged with defining, at the outbreak of war, the national *war aims* in accordance with the policy of our Government. This is the National Security Council. There is another agency which defines, with the approval of the President, of course, the *objectives* of the armed forces. This is the Joint Chiefs of Staff.

On each succeeding level of command the *objective* must be selected. It can be arrived at only after careful evaluation of the plan of the commander on the next higher level and study of his directives which assign the tasks to his subordinates.

Simplicity

The need for keeping a plan simple is evident to all experienced military officers. The advantages of a simple plan of action are many: the action required can be better comprehended, particularly by subordinates of limited training and

experience; if the intended course of action is simple, it will better withstand the shock and friction of war; it will permit modification and amplification to meet a changing situation; and it facilitates co-operation and enhances all forms of control. On the other hand, if a plan be too simple, it may not provide adequate scope and flexibility to allow it to be adapted to meet alternative situations.

Need for *simplicity* goes beyond planning and directives. There should be *simplicity* of strategy. There should be *simplicity* in weapons. There must be *simplicity* in organization, too. Command relationships must be clear and the chain of command direct and unbroken. One man, whenever possible, should serve only one master. *Simplicity*, of course, is relative. Operations that are simple to well-trained forces may seem highly complicated to untrained units.

Again the reverse may be true. To the uninitiated a plan of action may look quite simple, whereas actually the circumstances and conditions under which it is to be executed may involve complications unknown to him but which might render the whole plan impossible. Everything is simple to the "armchair strategist" who has all the valor and confidence bestowed by ignorance and by lack of responsibility.

Co-operation

Lately there has been a tendency on the part of some writers to substitute "unity of command" for the classic title of this principle. Although a persistent advocate of "unity of command," the author must take issue with its inclusion as one of the nine principles of war, if the number is to be as restricted as that. *Co-operation* does not meet the requirement exactly. To call it "unity of command" assumes that unified effort must stem from the directed co-ordination of the commander. Important as this is, other motivations

are essential to get the desired results. *Co-operation* is, however, incomplete and inadequate in that it implies unco-ordinated, entirely voluntary, and more or less fortuitous unity of purpose and effort. The word "control" is suggested and will be defined by stating that it embraces: an organization of command that clearly assigns responsibility and requisite authority to all command echelons, commensurate unto and appropriate to their assigned tasks; the required verbal message communication system and service with which to exercise command; adequate education, training, and indoctrination aimed to produce not only the necessary standard of individual fighting efficiency, but a spontaneous unity of effort (call it teamwork or co-operation), mutual confidence, and an unshakable and high morale; and a structure of command built up on leaders who by their professional competence and spiritual force command the respect, obedience, and enthusiastic efforts of their commands. These are the "controls" which, in combination and if supported by adequate forces and resources and the backing of a free people, can win battles, campaigns, and the war itself.

The Offensive

Most commentators on the subject of *the offensive* emphasize that by this means freedom of action is preserved; by this means we seize the initiative and that only by offensive action can we impose our will on the enemy. This is all very well so far as it goes, however, as an expansion of the usual interpretation of the principle of *the offensive* it would be preferable if the word could be given a more dynamic, progressive development. This should include not only the tactical concept of pursuit and maximum destruction, with annihilation of enemy forces as the ultimate, but in the strategic field, the exploitation of initial successes by

accelerating and intensifying the action of the campaign. Once the initiative is gained, sustained and continuously regenerated offensive action will capitalize upon all significant breaks which have been created in the enemy's strategic positions and will result in undermining his means and will to resist. The foregoing thought should be considered supplementary to and in extension of the principle of *the offensive*. Otherwise it will be necessary to foist upon the military profession an additional principle, "exploitation." More of this later.

There are many occasions that can be brought to mind where a commander, usually one strongly imbued with the spirit of *the offensive* and with an established reputation as an aggressive fighting leader, has been led astray by a thirst for combat and has abandoned his real "objective" to dash headlong into a fight.

However, let us digress long enough to make clear that in order to win in war we must fight the enemy and that no legitimate opportunity should be missed to damage and destroy enemy forces. Only the most compelling and overriding reasons can excuse a leader from doing his utmost to join and continue battle whenever, and so long as, he has prospects of success. Yet examples of unjustified abandonment of an "objective" are many. Important among them are the cases where either scouting or protective and covering missions had been assigned which were vitally important to the success of an operation as a whole. Here, always *the objective* should have been kept in mind and held paramount, no matter how tempting the lure to combat action which is eccentric to the attainment of the higher *objective* and whose pursuit might compromise or imperil a larger success. Examples which come immediately to mind are the actions of Admiral Beatty at Jutland and the conduct of Marshal Grouchy at Waterloo. Each was drawn

into eccentric action with a portion of the enemy forces, to the prejudice of the more important main battle. Both have been much criticized.

Gaining the Initiative

The offensive confers the initiative and, with it, freedom of action. It tends to deny both to the enemy. In World War II, when the allies seized the initiative and went over to *the offensive*, they had command of the sea and they established local command of the air where needed. Invasions of North Africa, Sicily, Italy, and finally Normandy resulted; all made possible for us by the use of that old but still potent strategic advantage, sea power, against a land-bound enemy. World War III, if it should ever come, may well find a repetition of this same situation.

Maneuver

Everyone must temper his tools for his own use. The term *mobility* suggests itself as an improvement over either *movement* or *maneuver*. This illustrates the different connotations of different simple words, which at first glance seem to be synonyms. *Maneuver* would seem to apply to a tactical situation; *movement* extends the idea into a strategic field; whereas *mobility* includes logistical considerations, a combination of inherent rapidity of movement with the ability to sustain it.

The Navy has been greatly impressed with the strategic *mobility* of its carrier air power. Carrier based air power, in the possession of a mobile air base, does have a capability of establishing and maintaining air superiority in areas of the world which would be, certainly at the start of a war and often at the beginning of a campaign, inaccessible to land based tactical aircraft. In World War II the role of carrier aircraft was decisive in the cover and support of offensive amphibious operations, among

others at the Marianas, Philippines, and Okinawa. Adequate carrier air forces available to the British in the area might have prevented the surprise German occupation of Norway. Possession of adequate carrier strength at Salerno would have been a great help to General Eisenhower. In fact, it might have permitted him to plan a landing in force much farther north on the Italian Peninsula. Remember the feat of the carriers *Enterprise*, *Yorktown*, and *Hornet* with their embarked air groups, in proceeding thousands of miles from the Coral Sea early in May 1942—repairing battle damage and replenishing at Pearl Harbor—and in participating less than a month later at the critical Battle of Midway in June 1942—again thousands of miles to the westward. This is a classical demonstration of real strategic *mobility* on a vast and really awesome scale as to time, space, and the translation of massive and powerful ready forces.

Mass

The term *concentration* seems to have advantages over either *mass* or *superiority*. *Mass* means a concentration of numbers and material over an indefinite area, but *concentration* focuses the effort on the critical point during a critical period of time.

This is certainly one of the cardinal principles of fighting, and also in every phase of the whole process of making war. All the great commanders of history practiced it. Nelson, Napoleon, Lee, and Jackson achieved great tactical successes by its use. There are excellent examples of it in World War II. In our grand strategy we concentrated on our main offensive action in the European theater, while conducting holding, attrition, and limited offensive campaigns in the Pacific and the Mediterranean theaters. Again within the limits of the Pacific theater, by concentrating on the attack in the Mar-

shalls early in 1944, we effected a strategic break-through of the outer crust of the Japanese island defenses. The effects of this vitally important thrust on the Pacific war were far reaching, and they were critically decisive. One of the most important effects achieved was the driving of the enemy fleet out of its main advanced base at Truk, to which it was never to return. This break-through exposed the inner island defensive positions, finally all the way to Okinawa, to successive assault and capture, and permitted rapid exploitation of the initiative that had been wrested from the enemy.

The Battle of Midway provides an excellent example of a proper selection of the physical *objective* and *concentration* on it. Although the Japanese troop ships were tempting targets, the carriers in the enemy striking force were the main threat. Upon the support and cover, which they would provide, depended the entire success of the Japanese operation. The *destruction of these carriers*, therefore, was chosen as the primary *objective* and practically all of our naval air forces, both carrier and land based, were thrown into the attack upon them, resulting in the destruction of all four of them. This was a turning point in the Japanese war because it wrested from our Japanese enemy control of the Central Pacific.

The Navy claims a high degree of flexibility in effecting concentrations, because in the case of its air power, it can concentrate the sea-borne bases of its air forces as well as the air forces themselves. The carrier task group constitutes a system, or complex, of multiple, mutually supporting bases and the task force is several of these in combination and is itself extremely mobile and flexible.

Amphibious operations epitomize strategic concentration. By utilizing the mobility of sea-borne landing forces, surprise concentration on selected, critically im-

portant objectives can be effected. The scope of such operations may be limited as at Iwo Jima or unlimited as in Normandy.

Element of Time

The time element is important in *concentration* since the application of this principle implies the simultaneous employment of force. In support of amphibious landings against opposition, pre-H-hour bombardments by air and surface forces illustrate the tactical *concentration* of fire power both in time and space. It is essentially a "concentration" of the tremendous sustained fire effect of sea-borne artillery and sea-borne air power in combination.

Economy of Force

This principle is certainly a corollary to *concentration*. Also its demands must be weighed with the compelling necessities of *security*. Very correctly, it is considered by most to imply a proper balance and appropriate adjustment of forces. Therefore, unless we have a plethora, an excess of forces, economy in the least important places must be exercised. Most flagrant abuses of this principle are the frequent attempts to avoid all risks by apportioning too great an increment of the forces available to purposes of security.

As a separate principle this seems the least potent of the lot because it is negative and frustrating to all commanders, high and low. However, while it may sometimes not loom large nor seem important to a commander who has been assigned one single task with adequate means for its execution, much attention will be accorded it by commanders in chief and by the Joint Chiefs.

Economy of force implies a proper proportionment of available forces both in regard to space and time. It aims at providing the necessary forces for concentrating and applying *mass* at the de-

cisive place at the proper time. To do so may necessitate a reduction of forces at other points to those required to maintain the bare minimum of *security*. It, thus, entails a compromise between *concentration* and dispersion. It should aim to further the desired *concentration* of our forces while, at the same time, impelling the enemy to dispose his forces to his disadvantage.

Surprise

The meaning of this principle is self-explanatory. *Surprise* takes many forms. In a strategic sense it may be the unexpected appearance of preponderant force or it may take the form of the unexpected employment of new weapons.

Classic examples of surprise concentrations of naval forces are: in World War I, the surprise appearance of the British battle cruisers at the Falkland Islands, and in World War II, of course, the attack on Pearl Harbor, but best of all, the Battle of Midway. Examples of the use of new weapons are: in World War I, the use of gas and the tank, and of the submarine for mass destruction of shipping; in World War II, the use of radar at night and in low visibility, which resulted in a number of spectacular tactical successes; the use of the proximity fuze, which came just in time to counter and limit the success of the *kamikaze* tactic, itself a surprise; and development and successful production on a crash basis and in fabulous quantity of many novel forms of amphibious tractor for landing over reefs. All of these literally implemented the rolling offensive across the Pacific in 1944-45.

There are various factors that enter into the employment of this principle: secrecy, rapidity of execution, concentration, and deception. It is unnecessary to dilate on the proportions in which these elements are used. Any employment of this principle of *surprise* employs one or more of them.

Tactical Surprise

Tactical surprise produces all the effects of shock and panic. There usually ensues confusion and the disruption of communications in the defender's camp and headquarters and down through his chain of command. Conflicting decisions are made, orders and counter-orders are issued, resulting in sporadic, quickly improvised, and ill-conceived action. Also the defender may actually lack the time and the physical means to counter the attack.

The most common error in the employment of *surprise* in the past has been the neglect to employ it with the principle of *concentration*. Instruments creating *surprise* often have been used tentatively and not in superior numbers, with the result that the *surprise* value has not been fully exploited. Again if the enemy is attacked by surprise with too little force or the operations fall behind schedule, results may be disastrous.

A Word of Caution

Surprise is a principle that must be handled carefully. There seems to be something intoxicating about it. Unless the user is particularly well balanced, unless he gives heed to all factors, unless he provides a practicable antidote to each enemy reaction, any attempt to overemphasize this principle may lead to weaknesses in his plan that an alert opponent will seize upon. The single-track mind has its limitations. Hooker was so intent on surprising the enemy at Chancellorsville that his right flank was turned, and he suffered the greater *surprise* and a crushing defeat.

In order to reap the benefits of *surprise*, one must be ready and able to exploit success. There are many examples in the last war, probably in all wars, where this was not done. In some cases, where the limited objectives assigned were attained with amazing ease and in un-

expectedly quick time, a re-estimation of the situation would have disclosed that larger objectives were thereafter attainable. If the means for a more expanded operation had been provided beforehand on a contingent basis, the initial successes could have been exploited. Probably the most important of these examples, those which had the most far reaching effects upon the issues of the last war, are: First, the failure of Hitler to expand the German successes which culminated in the fall of France. This victory they were unable to exploit by extending their conquest to the British Isles. Second, Japanese failure to follow up their smashing victory at Pearl Harbor. They could have proceeded with the seizure, occupation, and development of the defenses of Oahu and thereby the consolidation of a strategically vital position in the Hawaiian Islands. Such action would have secured a bulwark for an immensely strong system of defense from which they could have exercised control of the Pacific Ocean. Conceivably, either of these major war objectives might have been realized had the means been prepared beforehand. If both major objectives had been attained, it is difficult to imagine the course of events subsequent to either occurrence. It is startling to contemplate how the world would look today if either or both such supposititious assaults had succeeded.

Strategic Surprise

In strategic surprise we pre-empt time, establish superiority of force, and seize position by action that the enemy has not anticipated, which he cannot match nor meet, and by which we achieve an enduring advantage in a campaign. The high *mobility* of a sea-borne army carries with it the ability to effect strategic *surprise* and to gain the initiative. A large military force afloat in transports can move rapidly, often with absolute secrecy. It can select a destination at

any point in the enemy's sea frontier, which may be thousands of miles in extent, while the enemy can make only the vaguest guess as to where the attack will come.

The North African landings were a complete strategic *surprise*. Although in neither case strategic surprises, the Sicily landings were a tactical *surprise* and so were those in Normandy. In the latter case the enemy had been so deceived into the belief that the weight of the attack would fall in the Pas de Calais sector that the main landings were considered feints. The counterattacks, when finally ordered, were tardy and ineffectual. The landings in Leyte Gulf, although indicated to the enemy by preparatory operations several days in advance, which prevented tactical surprise, were a strategic *surprise* of magnitude. All of these examples are large-scale operations involving tremendous naval and land forces and very considerable air attack, support, and defense measures. They had vital determining effect upon the course of the war and upon the ensuing and ultimate victory over the Japanese enemy.

Security

Excellent comment on this principle is to be found in the treatise by Rear Admiral C. R. Brown, United States Navy, a former Chief of Staff of the Naval War College, on this subject:

The mission of security is to give us freedom of action. It has been called the handmaiden of surprise. It prevents surprise by the enemy; it is essential to surprise of the enemy. It means not only denial of information to the enemy but the ability to obtain information about the enemy. But security is more than mere information. It is also protection, the ability to prevent hostile interference.

He then cites the example of the big bomber base which can be protected by fighter cover, by defensive land operations, and by defense by naval forces of its overt seas communications. He emphasizes that another and most important

protection is the counterattack of the bombers from this base against the enemy airfields from which attacks would originate.

In case of a task force at sea not only must security be provided by means of a combat air patrol and other defensive security measures, when operating within range of enemy aircraft, but real security can be obtained by striking at the source of his offensive air action. This will be against his aircraft carriers if his air power is sea-borne and against his bomber and tactical airfields if the air threat is from airfields. On a still larger scale, the air defense of the vitals of the United Kingdom must be similarly protected and the Royal Air Force should have this counterattack capability.

Foch has stated: "A mission to be performed and the tactics one may use are two perfectly different matters. A mission of protection does not necessarily imply a defensive attitude; it will be often better performed by an offensive."

Security does not imply undue caution nor require avoidance of all risks and provision for even the unlikely developments. *Economy of own forces* is most flagrantly violated if forces and resources are wasted in an excess of passive defense and unneeded *security* measures.

Readiness

Now for consideration of a supposititious new list. As before indicated, *control* would be substituted for *co-operation or unity of command*. Although *flexibility* has sometimes been mentioned as a principle, this is provided for under the previously presented definition of *control*. In some lists will appear the principle of *administration*, which seems to mean *logistical or material readiness*.

It is here proposed that this concept be adopted as a part of a new and more

inclusive principle, titled just *readiness*, and meaning readiness in all its aspects.

This would mean that, on a national scale, we are prepared for mobilization and for the outbreak of war; that after mobilization the armed forces can undertake campaigns in all theaters that will be activated and that forces can be deployed into those theaters where we have or will have in time the necessary material means and are otherwise prepared to conduct active operations.

First, we must be ready in *personnel*. Our fighting men must have the requisite physical stamina, moral indoctrination, and basic training. We must have replacement units and troops and be organized at home for a continuous induction and training program on a broad base.

Second, we must be ready with our *intelligence*. Our intelligence organization must be in being and functioning before the outbreak of hostilities and be so constituted as to continue to function thereafter. We must be ready on all echelons of command to assist in the procurement of information and to evaluate, interpret, and use the resulting intelligence.

Third, we must be ready to *operate*. Our command organization must be adequate, our leaders and their staffs educated and indoctrinated, and a high degree of morale, discipline, and team training inculcated into the men and into the unit structure of all commands. We must be ready to produce plans in consonance with the tempo and trend of operations and to supply the command requisite for the direction and execution of our planned operations and the exploitation of strategic opportunity.

Fourth, we must be ready *logistically*. Our units and our men must be supplied properly and appropriately equipped.

Logistical readiness would mean that we have provided or can provide and maintain the necessary material support for an operation or a campaign; that we have

the shipping and other needed transportation and can establish, maintain, and protect a line of communications both by sea and by land or, in part, by air transport; that we have or can establish in time to support the operations and action the necessary bases.

Factors to Consider

Readiness, as a principle, would mean that our forces are provided with all the essential means for making war and that they are organized, conditioned, trained, indoctrinated, and equipped for the war we are to fight. It is not just preparation before the event, before the outbreak of war or before a battle, although this is part of it. It must be preparation continuing with augmented intensity and heightened tempo after the outbreak of hostilities and throughout the war. Such action would result in progressively building up fighting strength and in acquiring the dynamic power with which to prosecute the war victoriously. It should continue to the very end because, for example, complete preparations for the impending invasions of Japan had much to do with her suing for peace. It must continue after the war to secure the fruits of the victory. It must continue through peace to secure the lasting welfare of peoples.

Element of Time

The time element must be considered when we are discussing military power and its resultant effects. The danger and waste of piecemeal attacks are well known to all students of war. In fact, there is one fault common to the early and to the usual presentations of these principles. One gets the impression of a static situation. The element of time is not sufficiently emphasized; for "*time* is the factor which is common to all circumstance," and it is to be ignored at the price of failure.

A New List

If, then, in accordance with the foregoing, we are to have a new list, it would be:

The Objective (as the master principle)

Simplicity

Control (in place of *co-operation* or *unity of command*)

The Offensive

Exploitation

Mobility (in place of *maneuver* or *movement*)

Concentration (in place of *mass* or *superiority*)

Economy of Force

Surprise

Security

Readiness (to include both readiness of personnel and readiness of matériel)

There have been cited several concrete examples of action which illustrate the application of several of the principles in combination. This indicates the necessity for an adjustment in each situation between conflicting demands for supremacy of the various principles. This adjustment cannot be accomplished mathematically, although scientific methods will often help. So the conduct of war must remain an art.

In *Sound Military Decision*, a Naval

War College publication, a good case is made for considering military problems from the point of view of their "suitability," "feasibility," and "acceptability." The method of analysis and solution of problems outlined in that publication is sound, logical, and well worthy of study by military leaders. It has been, over a period of years, an accumulation and a synthesis of the best Naval War College thought in the development of this method of attack. It is also readily applicable to use in the solution of problems presented by many activities other than the military.

As General Sir Frederick Maurice has said, a mere knowledge of the *principles of war* is not enough:

By itself "it will not help a soldier to solve a problem of war any more than a knowledge of the principles of painting will, without steady practice and natural aptitude, enable an artist to paint a picture."

These, or any other set of principles, will not substitute for imaginative thought, logical analysis, common sense (good judgment), well-grounded broad professional knowledge, and the moral qualities of leadership. These qualities a good commander must have, but the "principles," if he handles them well, should help him.

There is the danger that we may become so enthralled by machines and weapons systems that we will lose sight of the fact that the man—the individual soldier—is the supreme element in combat. That is the reason why the foundation of our system of discipline is the same as the very foundation of our system of government: the preservation of the dignity of the individual.

General J. Lawton Collins

LIFE LINE TO KOREA

DOWN through the years, military leaders have learned that no strategic plan is stronger than its logistical support. Successful strategy and ultimate military victories are often determined by adequate logistical support.

Transportation is the key to the logistical success in the Korean campaign. Although the principal sources of supply are thousands of miles away, the vitally needed items reach the combat units in Korea through extensive military transportation facilities.

The rigors of the Korean campaign have demanded constant improvisation, improvement, and adaptability in the efficient movement of supplies. Every available means of transportation has been employed by the United Nations forces in Korea in getting the important logistical support to the combat troops. They have used sea transports, trucks, DUKWs, landing craft, air transports, railroads, ox-carts, helicopters, and, on many occasions, they have had to rely upon the human back.

The Navy's Military Sea Transportation Service (MSTS) has delivered more than 90 percent of the matériel required for combat consumption. An infantry division requires 17,000 tons of equipment to begin an offensive and 580 tons a day to keep it going. Through its network of transports and auxiliary ships, MSTS has accomplished the job of bringing the logistical support to the Korean theater.

Amphibious craft of the Navy, Army,

and Marine Corps, aside from their conventional use in amphibious assaults, aid in the unloading of MSTS transports at sea when pier facilities are overcrowded.

Once the supplies are unloaded in the theater, the Army's Transportation Corps handles overland supply movements through its numerous vehicular and railroad facilities. In some sectors of Korea, as much as 95 percent of all goods is moved by train. The head of the track is generally the front line, with the goods being unloaded almost in the enemy's front yard. Since railroads are primary targets, cargo trucks must fill the breach when the rail lines are terminated.

Vehicular supply, while effective, is extremely hampered by soggy rice paddies, rugged and high terrain, narrow roads, and ox-cart trails.

When overland supply bogs down, the airlifting of critical supplies becomes a prime method of transportation. *C-119 Packets* have successfully parachuted tons of supplies to units in the field.

The supply of isolated ground units is a helicopter operation. The helicopter can land in small clearings and unload its supplies exactly where they are wanted.

The human back and, when possible, ox-carts complete the logistic life line between production in the United States and the fighting forces in Korea. This life line is helping to safeguard the health and welfare of troops presently engaging the Communists.

Transportation is the key to logistical success in Korea. Although the principal sources of supply are thousands of miles away, the supplies reach combat units through extensive military transportation facilities

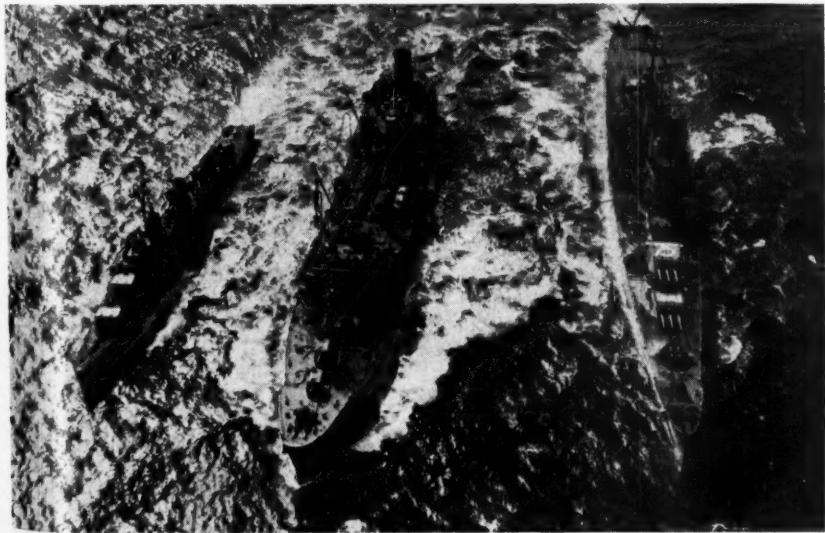


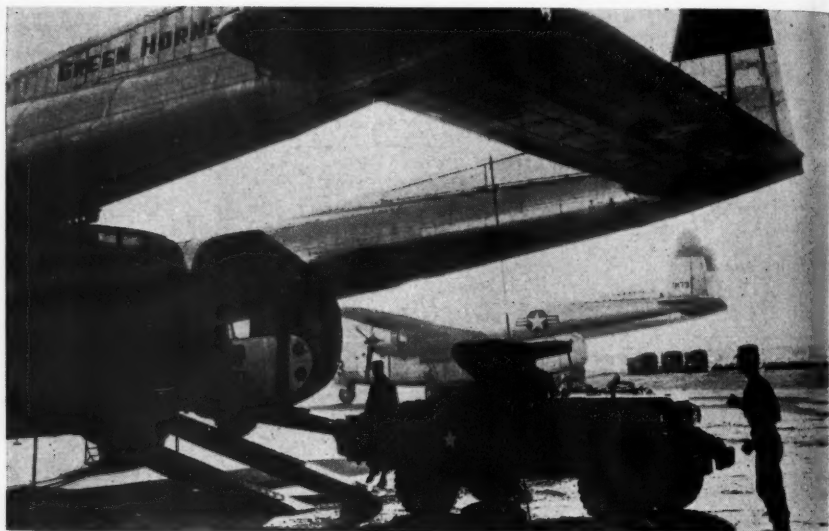
Each American infantry division requires 17,000 tons of equipment to begin an offensive and 580 tons a day to keep it going. Sea and air facilities have the job of delivering the goods. Above, a C-54 being unloaded at Kimpo Airfield in Korea. Below, hundreds of drums of gasoline being unloaded from an LST in Korea.—Department of Defense photos.





Down through the years, military leaders have learned that no strategic plan is stronger than its logistical support. Above, American sailors loading ammunition aboard a battleship in Japan. Below, a Navy oiler refueling a destroyer and a cruiser so that they may sustain their combat operation in Korean waters.—Department of Defense photos.



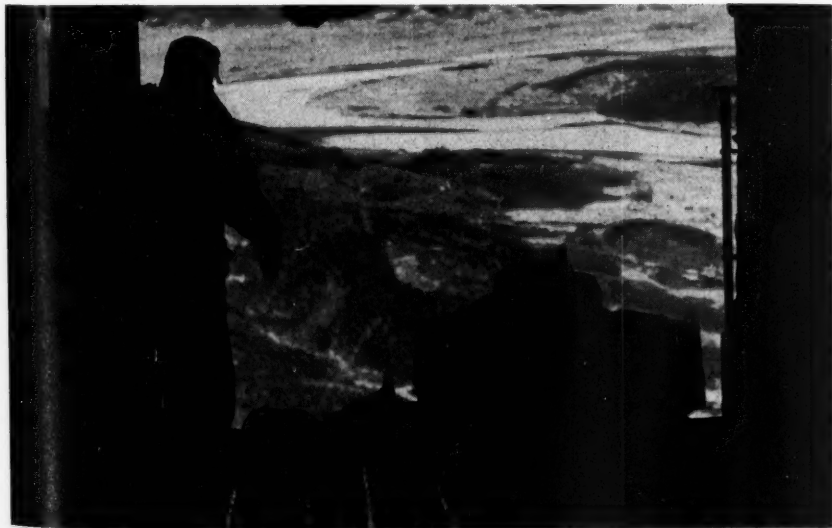


When overland supply bogs down, the airlifting of critical supplies and equipment becomes a prime method of transportation. Above, a 105-mm howitzer being loaded aboard a *C-119 Packet*. Below left, a helicopter landing a rocket launcher and rocket ammunition. Below right, supplies being parachuted to units in Korea.—Department of Defense photos.





The Air Force's *C-119 Packets* have successfully parachuted tons of critical supplies and ammunition to the fighting United Nations forces in Korea. Above, two "kickers" lashing supplies in place aboard a *C-119* before take-off for the target area. Below, a "kicker" prepares to complete a *C-119* air-supply drop.—Department of Defense photos.



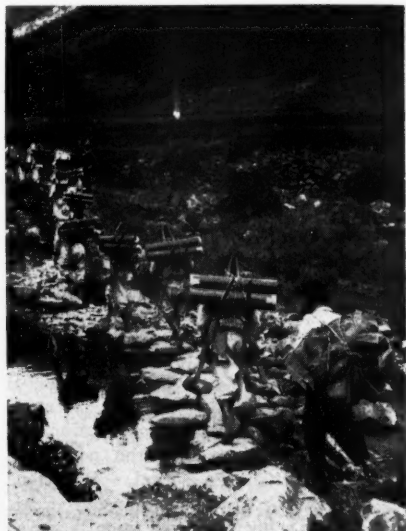
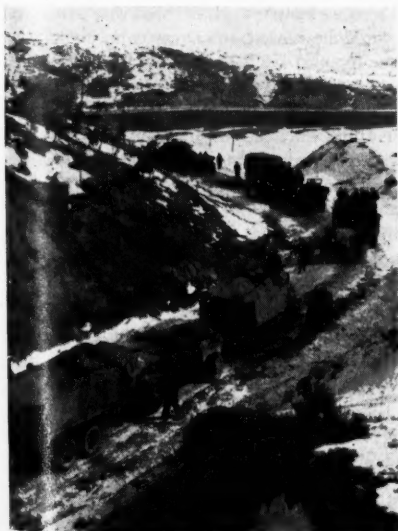


Amphibious craft of the Navy, Army, and Marine Corps have been used to great advantage in getting supplies to combat forces in Korea. Above, Army DUKWs bringing supplies to shore from ships at overcrowded Pusan harbor, Korea. Below supplies accompanying Marines in an invasion along the Korean coast.—Department of Defense photos.





Every available means of transport has been employed by the United Nations forces in Korea for overland supply. Above, American soldiers using an ox and a cart to carry supplies. Below left, truckloads of equipment accompanying a unit to the front. Below right, ROK civilians carrying supplies to fighting units.—Department of Defense photos.



Danger, Panic, and First Aid

Doctor Joost A. M. Meerloo, Instructor in Psychiatry, Columbia University
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The views expressed in this article are the author's and are not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

WHEN disaster strikes, those who are called upon to give help to large numbers of our population should have a simple scheme of treatment ready, rather than engage in theoretical speculations.

I will try to set down some of my own experiences with panic during World War II and its aftermath. We needed simple rules, since in a time of mass calamity everybody is affected by the same dangers and fears. However, he who knows what to expect and how to handle what is expected is better prepared to deal with calamity when it occurs.

The Question of Morale

Even if a population is well prepared and has self-confidence, nearly all people will be temporarily overcome by fear after an acute catastrophe. However, one need not automatically expect large-scale panics and hysterical anxiety outbreaks during an air raid. Some of our defense agencies put too much emphasis on "panic" as a mysterious evil. In a well-organized defense system, overt mass panic can be prevented.

Experiences after the bombardment of Rotterdam, in which the old center of the city was completely wiped out, showed how well the population took it. The subsequent surrender and the occupation by the Nazis seemed to give the people a worse shock than the actual destruction of their town.

In other countries, the people were

more inclined to show panic reactions, because they had been softened by a prolonged war of nerves and governmental instability. When France fell in June 1940, there was widespread panic. There was political confusion and the evacuation of the population had been poorly organized.

In 1943, our Psychological Warfare Service was eager to get hidden information about the morale of the German people. It was difficult, indeed, to acquire objective reports. Although the country was being pounded by the allied air forces, there were no apparent signs of decaying morale. Suddenly, a significant story appeared in one of the German newspapers. In an eastern German town, a rumor had been going around that a bear had broken loose from the zoo. Panic had spread and mothers kept their children at home. It was finally necessary to announce in the newspapers that heavy punishment would be meted out to anyone circulating the rumor further.

This incident told outsiders that this was more than a silly rumor. It occurred, in time, that the mighty Russian bear was steadily advancing toward the German frontier. All the hidden terror of Russia, which could not be conveyed directly, was implied in this rumor. When people are not allowed to express their fears, their mind finds other inroads to get rid of its tension. Every study of morale has to take into account such hidden manifestations of personal fear and collective fear.

Panic Fantasy

When the layman speaks of panic, he thinks usually of hysterical people running down the street like helpless children. I want to emphasize that panic may be of quite another kind, and that the

quiet concealed forms of panic are more frequent and more dangerous in their implications. Before we can plan a program for panic control during disaster and catastrophe, we must be fully aware of what panic may be doing to the minds of people. In such awareness of various fear reactions, one will find psychological release and a useful guide to action. Disaster control begins with knowledge and self-control.

People are so easily inclined to think of panic as something that suddenly overwhelms them—like a dreaded disease—or as something to be afraid of. There is even a fear of fear, a panic of panic.

Panic may be defined as a reaction to danger. This may be a real danger or an imaginary one; it may be an individual or a collective reaction. This definition sounds deceptively simple. Yet, we have first to define precisely what we understand as danger. Here begin our difficulties. A bombing, a fire, or an earthquake are easily recognized as dangers. So is financial collapse or financial panic. However, there are many subtle emotional dangers, such as fearful anticipations and imaginings of doom and disaster, which different people will face differently. The point is that our personal attitude toward life and toward people will determine what we will accept as dangerous.

I recall so well a tennis game during the Nazi occupation of Holland. At the court next to us, Nazi officers were play-

ing in fear and panic. Although the objective danger was the same for all of us—for the Nazis it was the enemy, for us they were friends. Months later, after my escape to England, I felt the same fear as those Nazi officers had felt during a German bombing of London. So great is the role of our fantasy about fear that an enemy bomb has a different meaning for us than a friendly bomb.

Danger Reactions

Even when people are well prepared for disaster, acute danger has a tremendous impact and tends to provoke all kinds of defensive actions. In some persons (a minority), this may be expressed in pathological fears. Every individual shows a different metal threshold of resistance to danger. Some break down immediately, cry and shout; others become quiet and paralyzed; while still others repress their fear and fright for weeks and months, until they too break down.

Inexperienced troops do not, as a rule, show immediate pathological fear reactions in combat; such reactions take some time to develop.

Paradoxically enough, fear reactions were often observed after the danger had passed. When the tension of battle or prison or other danger was over and there was no need to hide one's fears and to control one's behavior, many people gave free vent to their anxieties.

In Dover the people suffered a kind of

Being able to recognize the various manifestations of fear and panic is the first step in assisting a fear-stricken population if disaster strikes. Having a simple, effective first aid plan prepared is the second step

ing too. Suddenly, a group of British Spitfires flew low over the courts. We leaped up with joy and cheered at them as our friends and allies. The Nazi officers, however, on the next court, although not in uniform, threw themselves to the ground

collective nervous breakdown. The Germans had been shelling the town for 4 years. Then, when the allied troops swept the Belgium coast, the shelling suddenly stopped. It was almost as if the unexpected silence brought about the shock.

A personal understanding of general patterns of human reactions to danger and stress in times of disaster proved useful in keeping cool, and was of great assistance in giving first aid in abnormal disaster reactions.

For the sake of simplicity, let us discuss four general reactions to danger:

1. Regression.
2. Camouflage and disguise.
3. Explosive panics.
4. Psychosomatic reactions.

Regression

Although nearly all people are acquainted with the concept of regression to more primitive patterns of behavior, we are always surprised, nevertheless, to see people lose their acquired habits of civilization in time of catastrophe and panic. After an earthquake, a professor of mathematics was found half naked, playing with his child's toys in his garden. He behaved completely like a baby.

Such regression is encountered everywhere in the world. The organism in danger drops its complexity and its differentiation, and retreats to a simpler form of existence. Some complicated multicellular organisms become temporarily strong, simple monocellular beings, when circumstances of living become dangerous.

Man is subject to the same rule. When life is too complex for him, he often turns the clock back and becomes primitive again. A sudden disintegration of function may occur. He gets confused, all that has been learned is forgotten. An adult becomes a lost child. This regression in time of danger can be seen best in children; they frequently lose existing speech or return to bed wetting. Even in the mature, sophisticated man, we see this peculiar return to infantilisms in time of danger in a thousand varied signs. Many of his long forgotten childhood habits return. He will show you special charms protecting him. He may tell you special stories

of his magic invulnerability. He boasts more, takes more sweets, talks more, whistles more, cries more, and he shows less decorum and no stability of attitude.

Camouflage and Disguise

A second pattern is that of camouflage and disguise. This useful trickery is readily observed in the lower animal organisms, which temporarily acquire the form and color of their environment. It is just like military camouflage. In order to escape detection, the organism becomes of one color and form with its environment. We are acquainted with the example of the chameleon, changing its color in order to blend with the surrounding world. Many people are not so aware that our skin shows rudimentary attempts to do the same. In abject fear, rudimentary efforts of our skin try to change us; such as we may experience in "gooseflesh," or in the dark discoloration of the skin, which is called fear-melanosis. When we arrived with a first aid team in Rotterdam, after its bombardment, our first impression was that all people were wearing masks. They were still badly frightened, as if in continual hiding for the tremendous hell of fire thrown over them the days before.

Psychology has labeled these reactions as "feign or faint" reactions. Many of these camouflage reactions are found in shell shock or battle neurosis, which is one of the most absorbing chapters of medicine. The soldier or the civilian is in a state of mental paralysis. He is apathetic, cannot talk and cannot move; he looks like a dead man, and only his frightened eyes are alive. This so-called cataleptic reaction may have a frightening influence on bystanders. It communicates new fear to others.

It is of the utmost importance to realize how passive and paralyzed some people can become under circumstances which should demand the utmost of activity. It is as though these people play hide and

seek with fate. Like some animals, they do not move, in order that they will not be seen. They may even surrender passively to what they fear most in order to get rid of the tension of anticipation. Their mind may stop and they may give way to automatic behavior. This all belongs to the important chapter of shock and silent panic, man's paralysis, when he is no longer able to cope with his circumstances. Although, I do not want to mention extreme pathological cases, people have to be aware of the fact that there are numerous instances of subtle variations of such extreme human passivity and escapism. People may escape into physical disease; people may take refuge in "very important" pseudo-tasks and hobbies; people may deny real danger in a seemingly self-securing complacency; or other people may purvey the theory of hopelessness, of the inevitability of doom; or they may throw themselves into the pleasures of whiskey and night clubs; people even may hide themselves in long talking conferences—all this may be done to avoid seeing the reality that threatens. There exists a camouflage of safety, the well-known Maginot Line strategy. In old times we called it simply ostrich-policy.

The conquest of this camouflaged fear is one of the toughest battles the organizer of civil defense has to fight. His scared colleague may ensconce himself behind apparently well-justified red tape, behind petty plans and rationalizations as to what must be done first, before he is willing to see the essential issue. When authorities complain of the apathy of the public, it is with this kind of silent and passive panic reaction that they must deal.

Explosive Panics

Our third group of explosive reactions to danger is more familiar to everybody. Here we encounter the unco-ordinated "fight or flight," such as we experience

in a child's temper tantrums. When we use the word "panic" we think for the most part of the hysterical stampede out of a burning theater, or the flight of a population in terror. Here again, however, there are many subtle variations between the great stampede and the first symptoms of unrest we all undergo, when something is threatening. To this group of reactions belong some epileptic reactions (trench epilepsy) as well as fury and rage, self-destruction and criminal aggression, running amok, rioting and uncontrolled impulsiveness, frenzied running around, and many more exceptional forms of human behavior. A soldier in a state of panic may behave like an angry child. He may attack his buddies or shoot at his own troops. A woman may begin to cry, shout, walk aimlessly about, wringing her hands. Another may shout and scold or only cry for help.

Dormant within each of us lies the child with its temper tantrums. The more mysterious and unaccountable the danger, the more primitive our reaction may be. The prehistoric man in us awakens and intellectual control is no longer possible.

Psychosomatic Reactions

The group of psychosomatic reactions, though no mystery, is more difficult to explain. It happened that in my hometown, after a couple of bombardments, an epidemic of bladder disease broke out, at least that was the first explanation. People suffered from frequent urge to urinate and this disturbed the sleep. The explanation that this was one of the first reactions to fear, clarified the issue to many of the victims. Everybody is aware of the tension reducing function of the bathroom before going into a school examination.

Our body may react to danger and panic with a variety of physical symptoms, with perspiration, frequent urination, palpitations, diarrhea, high blood pressure, and

many more symptoms. We know that all those reactions are related to the mobilization of specific defenses in the body.

However, it is far more complicated, because in the human animal from birth on, the concept of danger continually broadens and changes. Because of his complete dependence on parents and environment, the human infant becomes involved in an increasing number of emotional relationships. Various organs may react to the special human training and this accounts for the tremendous variety in somatic and emotional response to threats from outside and anxieties from within. Loss of dependency can be a danger for the one, yet a liberation for another.

For our purpose it is important to know that our body is involved when we anticipate fear. A medical team was looking in vain for bugs causing an unknown intestinal disease among soldiers who were preparing themselves to land on one of the enemy islands. The mysterious epidemic disappeared after the soldiers had landed and the battle had started. The tension of fearful anticipation had caused this common psychosomatic reaction.

In war practice, we have found out that it is possible to convey something of this simple outline to the persons suffering from panic reactions. It is helpful to the victim to know that what has reduced him to childhood's level is part of a universal pattern of defensive behavior we all have to overcome. In understanding this, he grows less afraid and ashamed of his own fear, and will become more able to accept his duties quietly and with better controlled behavior.

First Aid

Experience during the last war has convinced me that a well-organized panic prevention is able to check most of the pathological reactions. In order to accomplish this, it is essential to understand the

variety of danger reactions, particularly those that are most deceiving, because they are hidden. Everywhere in the country we are mobilizing our physical resources; but who is mobilizing the emotional resources? My plea is that the military and civilian preparation think not only in terms of physical protection and physical first aid, but also of *mental first aid*.

Attitude of the Therapist

During the last war, we experienced how important the personal attitude of the therapist was in the treatment of battle neurosis and cases of acute panic. The "crying child" in the victim asks for a paternal, understanding attitude. Hostility toward a panicky person may increase his fear. During World War I, the so-called malingersers were dealt with in a very hostile way. They were treated with a painful application of electrotherapy, which, of course, did not cure them and often increased their anxieties. Such people are sick and need help. We must watch them lest they endanger themselves or others. They should be taken to a quiet place, out of the dangerous zone, where it is possible to calm them down.

Of course, the therapist must have his own fears under control if he is to be of assistance. If he cannot do this, there is a danger that he will become aggressive and intolerant toward the victim in order to relieve his own tensions.

The psychology of leadership—the strength and self-assurance of the leader—is one of the most important issues in combating panic.

Alcohol increases excitement. In panic, stiff drinks provoke more pathological reactions. The combination of fear and alcohol is a bad one. The same is true for the medical therapeutic reflex, which is often difficult to check because doctors under such circumstances are afraid too. However, people obsessed by fear may

react to sedatives in a paradoxical way. Barbiturates often make the panicky person more excited. If one must indulge in the magic therapeutic gesture, aspirin or bromides will, in most cases, be sufficient.

Hot coffee, soup, or cigarettes may be more effective than any narcotic. Experiences in Europe have proved that a cigarette can work wonders. If the frightened person is given something hot to drink or eat, he immediately feels more comfortable and relaxed, and is better able to bear his fears. If he can be given special duties which prevent further fantasy concerning his fearful expectations, his fear may be transferred into courageous co-operation. Organized civil defense activities serve this purpose very well.

Those who continue to react as paralyzed cataleptics may respond to the smell of ammonia or *eau de cologne* and later accept cigarettes and coffee.

Medical First Aid

Medical first aid can be given in any shelter where the more frightened, panicky patient can be separated and made to lie down in a dark, quiet place. The therapist may then calm him or make use of first aid hypnosis. If soldiers were hypnotized early after the impact of danger, many would express a desire to return to active duty as soon as possible. If treatment is postponed too long, the first "shock reaction" may become fixed and later treatment be made more complicated. Our experience was that hypnosis under such circumstances is rather easy; people in panic are more receptive to it.

There are also special psychiatric

techniques which provide the panic patient relief from the frightening experience and bring him to a certain form of abreaction of the accumulated tensions.

The account which follows points out what a simple explanation and clarification is able to accomplish under circumstances of acute fright.

On an evening in March 1944, in London, I was called to a group of soldiers, who had spent the night in a shelter quite near a place where a bomb had fallen. One of them, a fighter pilot, was quite shaky and jittery; he cried and raved because he thought his reaction bespoke cowardice. After he had been given some warm food, he was asked to lie down on a couch, whereupon he was hypnotized. Peculiarly enough, it was not the bomb incident that came to the fore as most important cause of his disturbance, but a quarrel with his commanding officer which had taken place just before he had gone on his furlough to London. Previously, he had not known what fear was. He had shot down many enemy planes, but suddenly, in the shelter, under the contagious action of other panicky persons, his morale had broken down.

Following this treatment we had a long talk about fear manifestations among pilots and about their fear of showing fear. The next morning he went back to his post, unafraid. From time to time he reported that all was well.

First aid is not always as easy as it was in this case; but we can see from this observation what one may expect from an emergency approach.

Knowing the varieties of panic is the first step toward conquering panic.

Civilian Amenability To Military Law

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THAT duly constituted courts-martial have jurisdiction to try military personnel for crimes committed while they are members of the military establishment is axiomatic.

Oftentimes, we fail to appreciate the strength in the legal foundation which assists the Army officer to carry out his responsibilities. Since World War II, additional strides have been made in the field of military law to the end that the indispensable element of discipline promises to be nurtured further. The most recent manifestation is the Uniform Code of Military Justice.

With the advent of the concept of "total war" the question of civilian amenability to military law is brought to mind. Numerous civilians, who will be working closely with the armed forces, will undoubtedly have an influence on the discipline of those forces and thus must themselves be subject to a strict code of conduct. The number of United States civilians who *today* are amenable to trial by courts-martial is amazingly high. To permit a proper understanding of the background and development of the Uniform Code of Military Justice, a brief examination of the sources and powers of courts-martial is in order.

Sources of Military Law

Both the Constitution and international law, which includes the law of war, combine to establish the foundation and sources of military jurisdiction. The

Fifth Amendment and the powers granted to Congress and the Executive join to spell out this vestiture. Although courts-martial are not the product of the Judiciary Article of the Constitution, their source is nevertheless expressed in that document. Congress is empowered to "make rules for the Government and regulation of the armed forces of the United States" under the Legislative Article, whereas the Fifth Amendment expressly exempts "cases arising in the land and naval forces" from the requirement as to presentment and indictment by grand jury.

Wanting is the jurisdiction to adjudicate civil actions, compel the payment of damages, ascertain or collect private debts, or hear any suits or actions that are not entirely penal or disciplinary in nature.

The United States Supreme Court, in *Grafton versus United States*, held that:

Courts-martial are lawful tribunals, with authority to determine finally any case over which they have jurisdiction, and their proceedings, when confirmed as provided, are not open to review by the civil tribunals, except for the purpose of ascertaining whether the military court had jurisdiction of the person and subject matter, and whether, though having such jurisdiction, it exceeded its powers in the sentence pronounced.

The place of the offense does not determine the jurisdiction of a court-martial nor is it affected by the place where the court sits. Jurisdiction is based upon the following requisites: vesting, by Congressional Act, in the court the power to try the offense and the person charged;

that the court was duly appointed by a person who had the authority to so appoint; and that the members appointed to the court qualified in consonance with the law as to number and competence.

This paper does not deal with the aspects of military commissions and provost courts and their numerous parallel jurisdictions under the Uniform Code of Military Justice to hear cases of violations of the law of war—both written and unwritten, and the many aspects of martial law. However, it appears appropriate to mention that courts-martial, military commissions, and provost courts may punish for contempt any person who uses any menacing words, signs, or gestures in its presence, or who disturbs the proceedings by any riot or disorder.

Persons Subject

In addition to the provisions of Article 2 of the Uniform Code of Military Justice which enumerate the various uniformed members of the armed services, both active and retired, who are subject, persons in custody of the armed forces serving a sentence imposed by a court-martial, other Federal employees assigned to and serving with the armed forces, prisoners of war in the custody of the armed forces, "in time of war, all persons serving with or accompanying the armed forces in the field" are provided for specifically.

found, but rather by the activity in which it may be engaged at any particular time. Thus, forces assembled in temporary cantonments in the United States for the purpose of training preparatory for service in the actual theater of war were held to be "in the field." In *McCune versus Kilpatrick*, it was held to be "in the field" when a merchant ship and crew were engaged in transporting troops and supplies to the combat zone.

It is interesting to note that a statute in force in 1866 which subjected contractors, who were supplying the Army and Navy, to trial by court-martial for certain misconduct was held unconstitutional. In an elaborate opinion the court held that Congress could not "by its mere declaration" place or include civilians in the Army, and that the provision cited was "idle and nugatory"; and it was well observed that if Congress could so dispose of one class of civilians, it could of another, or of all classes, and thus establish a "military despotism."

It is encouraging to note that subsequent legislation has been upheld as the following cases establish and that "military despotism" has not ensued.

In the United States

The leading controversy during World War I which tested the jurisdiction of a court-martial, through a writ of *habeas*

The number of American civilians who are amenable to trial by courts-martial today is amazingly high. In the event of another war the Uniform Code of Military Justice will be applied to a still greater number.

The words "in the field" imply military operations with a view to an enemy, and it has been said that in view of the technical and common acceptance of the term the question of whether an armed force is "in the field" is not to be determined by the locality in which it is

corpus, was the Gerlach case. In this case, a civilian employee, at a port of embarkation supporting the American Expeditionary Force in France, was convicted of theft of Government military stores by a duly constituted court-martial. The Federal court in upholding the

conviction discussed the port as one of the termini of the lines of communication reaching from the Atlantic seaboard to the zone of war in Europe where our forces were engaged in actual warfare along the Western front. "Those who serve along the lines of communication are to be considered as 'serving with the armed forces in the field,' and such line must necessarily include the base of supplies from which the line extends to the fighting zone." Accordingly, a civilian employee serving at a port of embarkation is amenable to Article of War 2(d), which makes subject to military law "in time of war all retainers and persons accompanying or serving with the armies of the United States in the field, both within and without the territorial jurisdiction of the United States."

With the advent of air power and its importance logistically, it appears that a similar result would follow though the terminus is an aerial port of embarkation located not merely on the coast but also in the central portion of the United States. The damage which results from any impairment of the lines of communication is certainly present; the influence is equally strong; and the Gerlach case appears to be in point.

Whether or not jurisdiction should be asserted in such a case is a question of administrative expediency. If the civil authorities should proceed in the case and make proper application for the surrender to them of the offender for trial for his alleged offense, such application should be given consideration in accordance with the policy heretofore announced by the War Department with respect to the surrender to the civil authorities for trial of persons subject to military law who are accused of civil offenses.

A civilian who was employed by the United States as a field auditor in the office of the constructing quartermaster at a camp in South Carolina was subject

to trial by court-martial for fraud perpetrated in connection with his duties inasmuch as he was "serving with the armed forces in the field." Distinguishable was the case involving another civilian employee who, although employed by the Ordnance Department, was stationed as a line inspector at the O'Bannon Corporation in Rhode Island. There it was held that he was not serving with the armed forces in the field and, therefore, not amenable to military law.

Armed Forces' Vessels

In time of war all persons employed on or serving with chartered transports or transports otherwise in the service or under the control of the Quartermaster Department of the United States Army are persons "serving with the armed forces in the field," and are amenable to military law. When seamen enter into contract, to render service in such transports for a specified period, the Government has the right to rely upon them for the performance of their obligation and if they leave their place of duty with intent to escape service for which they have engaged, they may be arrested as deserters, tried by general courts-martial and punished as prescribed by the Articles of War.

Crews of Army transports and Army tugs signed on under shipping articles containing "army clauses" may be arrested and confined by the provost marshal upon the authority of the masters of such vessels. The nature of the duties actually performed by these men, and which under these "army clauses" they undertook to perform, subjects them to the control of the Army, both as to discipline and punishment and as to the means and methods of enforcing the same. The master of the vessel is warranted in causing arrest and confinement; moreover, it is his duty to accomplish the same in a proper case. A consular of-

ficer of the United States has no jurisdiction whatever over the members of crews of Army-chartered transports or tugs, either when a member is in arrest or under confinement by direction of the master, or when in service on board the vessel; and the master of an Army-chartered transport or tug is not required in a foreign port to discharge or ship its crews before a consular officer. In time of war when mine planters are engaged in active service, civilian employees on such mine planters, like civilian employees on Army transports, are subject to military law.

The words "in the field" do not refer to land only but to any place whether on land or water, apart from permanent cantonments or fortifications, where military operations are being conducted.

A civilian automobile driver employed by a Government contractor recklessly ran down and killed a soldier within the limits of the camp. Forces in cantonment were "in the field" and thus he was subject to military law and trial. Whether, under all circumstances, the employee should be tried by court-martial is a question of policy to be decided by the proper military authorities.

Post Exchange Employees

Civilian employees of a post exchange at Camp Jackson, South Carolina (distinction should be drawn between the temporary "camp" and the permanent "fort"), were held to be within the purview of persons "serving with the army in the field." Red Cross personnel whose organization is a private agency co-operating with the armed forces are also in this category. Such personnel are subject to the military law when they accompany the armies outside the territorial limits of the United States or serve within the limits "in the field." In any event, the allegation of "accompanying the armies," if outside the territorial limits, must be

made and evidence introduced to establish the allegation. Failure to do so is fatal because from the record it is not established that, in fact, there was the feature of accompaniment which is essential to confer jurisdiction in the court-martial over the subject person.

'Accompanying' the Armed Forces

That one may be considered to be "accompanying" an armed force although he is not directly employed by such force or by the Government but works for a contractor engaged on a military project or serves on a merchant ship carrying war supplies or troops has been affirmed. In those cases, however, in which a civilian has been held to have been "accompanying" an armed force, it has appeared that he has either moved with a military operation or that his presence within a military installation or theater of operations was not merely incidental but was connected with or dependent upon the activities of the armed forces or its personnel. He must, in order to come within this class of persons subject to military law, "accompany" the armed force in fact. Although a person "accompanying" an armed force may be "serving with" it as well, the distinction is an important one, for even though a civilian's contract with the Government may have terminated before he has committed an offense, so that it may be said he is no longer "serving with" an armed force, jurisdiction may remain on the ground that he is "accompanying" an armed force because of his continued connection with a military community.

That the Act of May 1950, in establishing the Uniform Code of Military Justice, did not change the existing law regarding those "accompanying or serving with the armed forces" was decided in the case of the *United States versus Marker*. In this case, the accused was a civilian employee of the Department of

the Army and was employed as a production superintendent at a tire plant in Japan. Under a contract with a Japanese corporation, operations at this plant were conducted for the Army under the supervision of occupation personnel, both military and civilian. The accused abused his position by actively securing from the corporation gifts, favors, and the construction of a residence. Upon conviction by a general court-martial, the court held that it is incumbent to establish that Congress has endowed the court with authority and jurisdiction to try the case inasmuch as there is no presumption of amenability of a civilian to trial by court-martial. Here, under the circumstances of the case, the accused was "accompanying or serving with" the armed forces of the United States within the meaning of Article 2, Uniform Code of Military Justice.

It appears rather conclusive that Uniform Code of Military Justice Article 2 (10) confers necessary jurisdiction on courts-martial and military commissions to maintain the required discipline and control over persons serving with or accompanying the forces in the field in time of war.

Territorial Jurisdiction

Were this jurisdiction not granted, an act without the territorial jurisdiction of the United States would go unpunished if it were committed in an area which was occupied. That citizens of the United States are not amenable to the law of the conquered country has long been recognized under the doctrine that the foreign sovereign ceases to exist as such upon defeat. The case would be different if the act violated the sovereignty of a friendly nation of which our forces were merely guests. Comity between nations usually permits the visiting power to retain the right to try offenders and this is a sovereign grant, not an individual right. Thus the civilian accompanying the armed force

would probably be punished for his proscribed act in the absence of Article 2.

It has undoubtedly been observed that Uniform Code of Military Justice Article 2 (10) is restricted to periods of war, and the thought probably arises that there could well be crimes committed outside the territorial limits and not peculiarly punishable by the United States courts wherever committed which would go unpunished in the event we, as a nation, were not in a state of war. This consideration is particularly appropriate during our present elongated "cold war" which requires our military forces to be disposed in many corners of the world. With these forces are many civilians—dependents, correspondents, employees, and others—who should be held accountable for the same standard of conduct as their fellows in uniform. In furtherance of this desirable end, Congress enacted the following provisions in Article 2 to broaden the jurisdictional scope:

Subject to the provisions of any treaty or agreement to which the United States is or may be a party or to any accepted rule of international law, all persons serving with, employed by, or accompanying the armed forces without the continental limits of the United States and without the following territories: that part of Alaska east of longitude one hundred and seventy-two degrees west, the Canal Zone, the main group of the Hawaiian Islands, Puerto Rico, and the Virgin Islands;...

Subject to the provisions of any treaty or agreement to which the United States is or may be a party or to any accepted rule of international law, all persons within an area leased or otherwise reserved or acquired for the use of the United States which is under the control of the Secretary of a Department and which is without the continental limits of the United States and without the following territories: that part of Alaska east of longitude one hundred and seventy-two degrees west, the Canal Zone, the main group of the Hawaiian Islands, Puerto Rico, and the Virgin Islands.

It appears quite clear that Congress has now eliminated the loopholes which existed under former statutes. Until the enactment of the Uniform Code of Military Justice there were many areas in which

the United States, although having a vital concern over their administration, was devoid of jurisdiction to punish otherwise criminal acts. Various "leased islands" throughout the world are good examples.

Since the termination of active hostilities with the Axis powers, there have been numerous cases brought before military tribunals—both courts-martial and commissions. A few have been capital cases involving offenses committed in Japan and Germany and which, were it not for the jurisdiction conferred upon these military tribunals by Congress, would have gone unpunished. Many of these cases involved dependents of military personnel who are considered in the category of those who "accompany the armed forces without the territorial limits of the United States."

To be complete, any discussion of civilians amenable to trial by courts-martial must include those persons who either are questionable members of the armed services or whose association has terminated.

Questionable Status

The most recent report in the *Digest of Opinions* of the Judge Advocate Generals of the Armed Forces involved the alleged lack of jurisdiction over the accused because he had never signed a contract of enlistment. There was no contract in the accused's service record. He admitted having taken an oath, however, receiving \$55 pay and full uniform allowance, signing insurance and bond papers, and being fingerprinted. His service record showed an enlistment, personal descriptive data, general classification test marks, and an application for enlistment signed by him. The court held that the accused not only failed to sustain the burden imposed upon him, but his record affirmatively shows him to be an enlisted person in the naval service. The taking of the oath of allegiance is the

pivotal fact which changes the status from that of a civilian to that of a soldier. The burden of supporting a plea to the jurisdiction of a court-martial rests on the accused to establish such a plea by a preponderance of the evidence.

One of the leading adjudications to examine the status of a minor who had enlisted was the Tarble case. In this case, in addition to the conflict between the State of Wisconsin and the Federal Government as to the sovereignty which had the supreme authority, it was held that not only was the United States primarily concerned but that the Federal Government could treat the fraudulent enlistment by the minor as voidable at its option; that the contract was not void; and that the fraudulent enlistment was cognizable and punishable by a court-martial as an offense against military law.

The subsequent cases follow that decision and the United States treats fraudulent enlistments as voidable. It is interesting to note that many cases arose during World War II when zealous youths, too young to enlist legally, accomplished the same by various methods of falsification; most of them were granted discharges of an administrative nature, without any stigma whatsoever. It appears that public policy and opinion, in a period of emergency particularly, makes such a treatment virtually mandatory.

The vast majority of cases considering the question of jurisdiction over the military person are concerned with the time of the termination of the contracted period of service. At the conclusion of World War II, the American public, and particularly the legal profession, were shocked at the possibility that a grand-scale theft, involving several hundred thousands of dollars worth of the German Hesse crown jewels by temporary United States Army officers, might go unpunished. The Durant cases involved an officer and his wife, who was an officer in the Womens' Army

Corps, who conspiratorially purloined personal treasures from German nationals. One of the cases was examined by the Federal courts on the question of jurisdiction over military personnel who had been placed on terminal leave prior to a reversion to an inactive status. After lengthy litigation, the convictions were sustained but Congress was made cognizant of the fact that had judicial process been delayed until the conclusion of the terminal leave, there would have been no jurisdiction over the person to permit punishing the offense.

Jurisdiction Extended

Accordingly, Congress enacted the following article in the Uniform Code of Military Justice.

Subject to the provisions of Article 43 (Statute of Limitations), any person charged with having committed, while in a status in which he was subject to this code, an offense against this code, punishable by confinement of five years or more and for which the person cannot be tried in the courts of the United States or any State or Territory thereof or of the District of Columbia, shall not be relieved from amenability to trial by courts-martial by reason of the termination of said status.

Thus, except for less serious cases

wherein the maximum punishment is less than 5 years, the precedents which established that jurisdiction terminated at actual discharge (except for causes sounding in desertion, fraudulent discharge, and frauds against the Government which survived a valid discharge) need not be consulted. Jurisdiction once attaching in major cases continues, notwithstanding return to civilian status, until the statute of limitations has run.

An attempt has been made to outline the broad aspects of civilian amenability to trial by military tribunals—without considering war offenses in the international sense, or features of martial law—to both the latter of which could be devoted volumes. In any future war, it is probable that the United States will be subjected to aerial attack. Whether it will be necessary to impose martial law similar to that experienced in Hawaii during World War II remains for the future to answer. In any event, it appears evident that the Uniform Code of Military Justice will be applicable to an ever increasing number of civilians who will be "serving with the armed forces in the field."

We must all recognize—in all our thinking and our planning—that the Korean war is but the most dramatic and most painful phase, for us at this moment, of our world-wide struggle against Communist aggression.

We face an enemy whom we cannot hope to impress by words, however eloquent, but only by deeds—executed under circumstances of our own choosing.

I hope and believe that our fighting men in Korea shall never harbor the thought that they might be fighting a forgotten war.

I believe that the architects of aggression can be made to realize that it would be fateful folly to ignite other conflagrations like the Korean conflict elsewhere in the world.

I believe that if we think clearly enough, plan carefully enough, and work tirelessly enough, we can both save freedom and secure peace.

President Dwight D. Eisenhower

The Biak Operation

Major Roger E. Lawless, *Signal Corps*
Instructor, Command and General Staff College

This is the first of a series of two articles on this subject. The second article of this series will appear in the June issue.—The Editor.

ON 15 JUNE 1944, United States forces in the Central Pacific area landed in the Marianas Islands. Some air support for this operation, particularly heavy bombers, was to have been supplied by Allied Air Forces, Southwest Pacific Area, from land bases in the Hollandia area. This support did not materialize. The reasons for this failure are found largely in the account of Operation *Horlicks*, which had as its primary objective the capture of three Japanese airfields on Biak Island in Geelvink Bay. The strategic scene of this operation is shown in Figure 1.

Horlicks itself was a last-minute change in plans. The original campaign plan was for Southwest Pacific area (SWPA) forces to land at Sarmi, New Guinea, and seize airfield sites for development and use. Simultaneously, an airfield on nearby Wakde Island was to be captured. This double operation was to be staged from Hollandia, 130 miles to the southeast. However, the then recent success of bypassing operations in the Southwest Pacific area, coupled with the increasing need for air support in the Central Pacific, motivated an increase in the tempo of these activities. Thus, on 8 May

it was decided that Biak Island, 180 miles farther to the northwest, was to be substituted for Sarmi. Wakde Island remained in the altered plan because its air strip was considered necessary to provide fighter aircraft cover for the Biak operation. There were 21 enemy airfields within easy range of Biak.

As desirous as the allies were to seize Biak's airfields, the Japanese were as determined not to lose them. On some earlier occasions in the Southwest Pacific area, Japanese land and sea forces often failed to co-operate in their obviously joint operations. Now the desirability of retaining Biak was strongly voiced, oddly enough, by the Japanese Navy, gladly endorsed by the victory-starved Army, but was viewed askance by the naval air arm. The reason was that the Japanese Navy felt that the inevitable decisive naval engagement of the war, Operation *A-GO*, would soon be fought in this area. The Navy, therefore, wanted Biak held and improved to furnish land based air support for the showdown.

The airfields captured by the allies at Hollandia in April were found to be inadequate and heavy bombers were forced to continue operations from the Admiralties, 400 miles to the east. The strategic urgency of the situation was evident. It was then early May. Accordingly, General Headquarters, Southwest Pacific Area

Despite the fact that the invasion of Biak was a complete surprise and was virtually unopposed, it bogged down because of a lack of co-ordinated planning among the task force units and inadequate intelligence

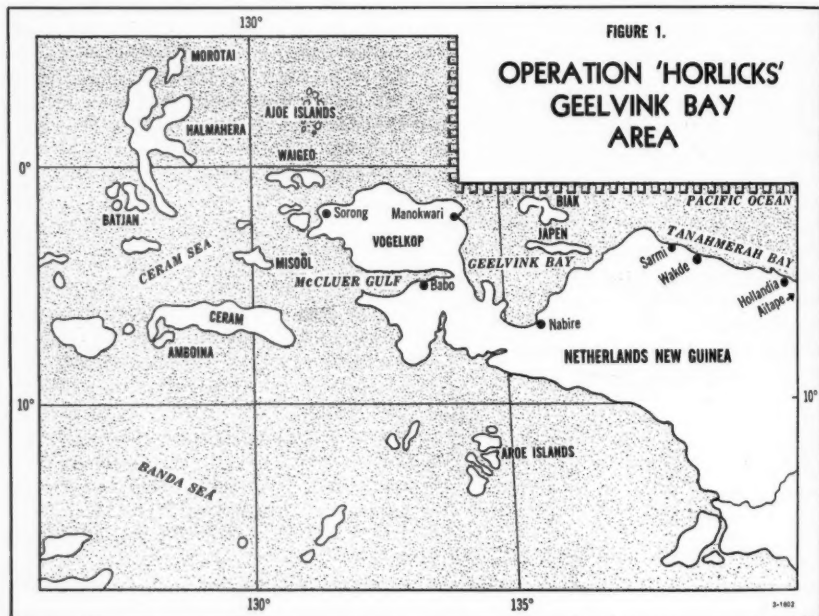
(GHQ, SWPA), on 10 May issued the new directive for Wakde-Biak. Execution was assigned to the Hurricane Task Force, although the change in plan evoked no change in units assigned to the force.

Organization

The basic combat unit of the Hurricane Task Force (HTF) was the United States

and the reconnaissance company. The Sixth Army reserve for Biak consisted of two regimental combat teams, one at Aitape and another at Hollandia.

The naval attack force (Task Force 77) comprised, in addition to amphibious elements, 2 heavy cruisers, 3 light cruisers, and 21 destroyers. These combat vessels, however, were spread over the entire as-



41st Infantry Division, less the 163d Regimental Combat Team (RCT) which was to seize Wakde. Both the task force and the division were under the command of the division commander. HTF came under the direct control of Alamo Force (Sixth Army). HTF was reinforced by two field and two antiaircraft artillery battalions, a 4.2-inch mortar company, a medium (75-mm) tank company (less one platoon), an engineer boat and shore regiment, and several antiaircraft batteries. The HTF reserve consisted of two rifle companies

sault force on D-day and also escorted artillery and construction groups on D plus 1 and D plus 2, and later supply convoys. *No aircraft carriers were included.*

Close air support was primarily the responsibility of the advance echelon of the Fifth Air Force, based on Hollandia and Wakde.

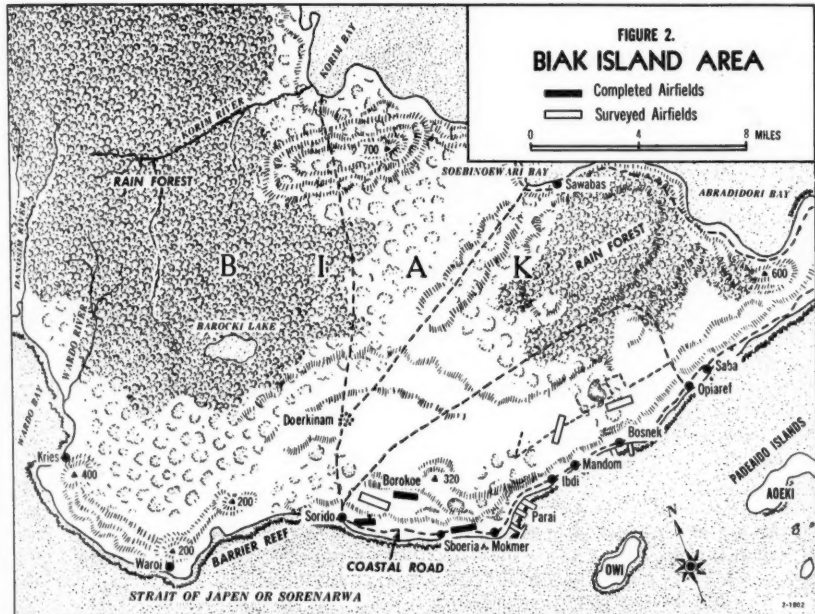
Planning and Training

A hastily assembled feasibility conference was held at Sixth Army head-

quarters on 10 May and the ensuing field order for the operation was published 12 May. Wakde was to be invaded on 17 May, and Biak on 27 May. (The Wakde phase was a success although the fighting was intense.)

Part of the tribulations that eventually beset HTF were traceable to the eleventh-hour switch from Sarmi to Biak, a deci-

portion of which were "calculated"), and important concessions had to be made to meet the early D-day. Whether the unexpectedly long campaign on Biak resulted from too optimistic a view of the mission by those above the task force level, and hence abnormal planning and faulty tactical execution followed, is a matter of sober conjecture. It is fair to



sion which though wise was so late as to impede materially adequate planning and preparation. After establishing the sailing time, insufficient time remained for detailed planning, rehearsals, staging, intelligence briefings, and the resting of troops. The net result was that a moderate force sailed against an enemy stronghold which, until then, was unique only because so little was known about it.

Upon receipt of the field order, an anomalous situation took root and continued to grow. Improvisation, risks (only

say that the following circumstances were not helpful:

1. Absence of joint planning under one roof.
2. Overworked task force units. (The 41st Infantry Division landed at Hollandia, Wakde, and Biak within the space of 6 weeks.)
3. Army operation of LVTs (landing vehicles, tracked) in an assault role. (A rehearsal uncovered serious deficiencies in forming assault waves. Communication with control vessels did not exist.

There was, however, no time for further rehearsal.)

4. To stage, troops and equipment were worked night and day and LVTs for the assault were used as lighterage. (On D-day 20 percent of the LVTs broke down mechanically.)

5. Similarly, initial engineer equipment was in poor condition because of excessively heavy operation during staging as well as an existing shortage of spare parts within the theater.

6. Maps were poor and their distribution was late.

7. The task was apparently not completely understood at the regimental level. (It is not clear just when HTF was expected to seize the airfields, but in view of the Marianas target-date of 15 June, it is *probable* that GHQ expected the fields to be operational by 10 June. One regimental commander later stated that it was only after 15 June that he learned there was a deadline.)

8. Inadequate intelligence. (Pressured by time, the Sixth Army was unable to supply HTF with detailed information of the enemy, terrain, and offshore conditions on Biak. Japanese combat effectiveness were thought to be at most 2,500, principally infantry. This belief would account for the initial shortage of infantry within HTF.)

'The Lost World'

Biak was as unreal and frightening as Conan Doyle's *Lost World*. It is difficult to believe that the terrain in any other Pacific island was tougher. There was no drinking water. Supplies moved only by human pack trains. It is an island of innumerable coral caves, some like dark hallways, others as deep and as large as a five-story building.

The southeast coast (see Figure 2), from about 8 miles east of Bosnek to Mokmer village, is bordered by a steep coral ridge which rises to 400 feet high and is covered by tropical rain forest

and undergrowth. At Bosnek, the cliff was about 500 yards from the beach and was about 200 feet high. There was a break in the cliff there which permitted access to the interior of the island. Beyond the cliff there were extensive scrub-covered plains and native gardens.

Near Mokmer, the ridge turns north for 1½ miles and then west again. At Parai, one terrace comes down to the shore line and forms a natural defile 3,000 yards long. The turning of the main ridge combines with a protrusion of the coast line near Parai, to form a flat plain about 8 miles long and 2 miles wide upon which the Japanese built the Sorido, Borokoe, and Mokmer airfields and surveyed the site for another. Sites for two more airfields had been surveyed beyond Bosnek. A fringing reef did not prevent access to the sea at Mokmer but did east and west of Mokmer. Two coral jetties extended over the reef at Bosnek and there were three at Mokmer.

The caves of Biak played a significant part in the battle. There were hundreds of caves no two of which were quite alike. They were generally of four types: the simple cavity type, tunnels, galleries, and sumps. Sumps were found on ridges north of the coastal plain which were circular holes up to 100 yards in diameter and 75 feet deep, with sheer sides. One or more caves usually opened at the base of the sides or from small pits in the bottom. About 1,200 yards north of the western end of the Mokmer airfield, on the spur ridge, were three large sumps connected by tunnels. These were known as the West Caves. North of Mokmer, 180 feet high up on the main ridge, were two more—the East Caves—which provided an unobstructed view of the coast from Parai to Borokoe.

Our Estimate

It was known that early in May the Japanese had ordered the defenses of Biak strengthened and aerial reconnaissance

disclosed efforts along that line. The extent of the Biak defenses, however, was not known. The garrison was thought to consist of 4,400 men of the veteran (China) 222d Infantry Regiment of the 36th Infantry Division. Effective combat strength of up to 2,500 men was believed to be concentrated at the Mokmer airfield. The Bosnek area was considered to be lightly held.

One thing was obvious—the terrain certainly favored the defender.

Four avenues of approach to the airfield area existed:

1. Across the reef and onto the Mokmer airfield itself (this was rejected for it played to the enemy strength).
2. West from Bosnek along the coastal trail through the Parai defile.
3. West across the savannah behind Bosnek.
4. A combination of 2 and 3.

The enemy status of supply (about 4 months) was believed initially to be good. Resupply was considered extremely difficult because of the supposed allied air and sea superiority.

The enemy reinforcement potential was considered good, but difficulty was attached, by the allies, to its fulfillment. Enemy strengths in the Geelvink Bay area alone were estimated as follows: Noemfoor, 1,000; Manokwari, 8,000; Nabire, 2,000; and Jefman, 1,500.

Japanese Capabilities

Japanese capabilities in the order of probability of adoption were finalized as:

1. Delay west from Bosnek; final defense in the airfield area.
2. Counterattack from west and north against the beachhead while continuing to defend the airfield area.
3. Defend the Bosnek area.
4. Reinforce any of the above from outside Biak.
5. Evacuate the island.
6. Minimum estimated air capability

of 100 fighter sorties and 25 bomber sorties each day based on one sortie a day.

Japanese reactions in the Southwest Pacific area prior to Biak had been generally unpredictable, although Wakde revealed new determination. In the Biak case, there was no clear indication as to whether or not the enemy intended to fight. However, strong aerial reaction was expected. The possibility of our naval attack force being important enough to attract superior Japanese naval forces known to be in southern Philippine waters could not be discounted, but the allied naval forces did not believe that the enemy would risk major fleet units in an attempt to retake Biak once a foothold had been secured.

HTF Deficiencies

The principal foreseeable deficiency, and one which caused the HTF commander some concern even before he departed from Hollandia, was a shortage of infantry. Although enemy strength and locations were not accurately known, the terrain was so rugged that a relatively inferior force could interfere seriously with, though probably not prevent, accomplishment of his tasks of securing the beachhead and the airfields. For this mission the HTF commander had only two infantry regiments with moderate artillery support and 12 tanks. It appeared that if the enemy were active, sufficient troops would not be available for the protection of the lines of communication and that the striking force itself might not be adequate for seizing the airfields. In this regard, a calculated risk was apparently accepted, to be offset, if unfavorable, by Sixth Army reserves.

Japanese Defense Plan

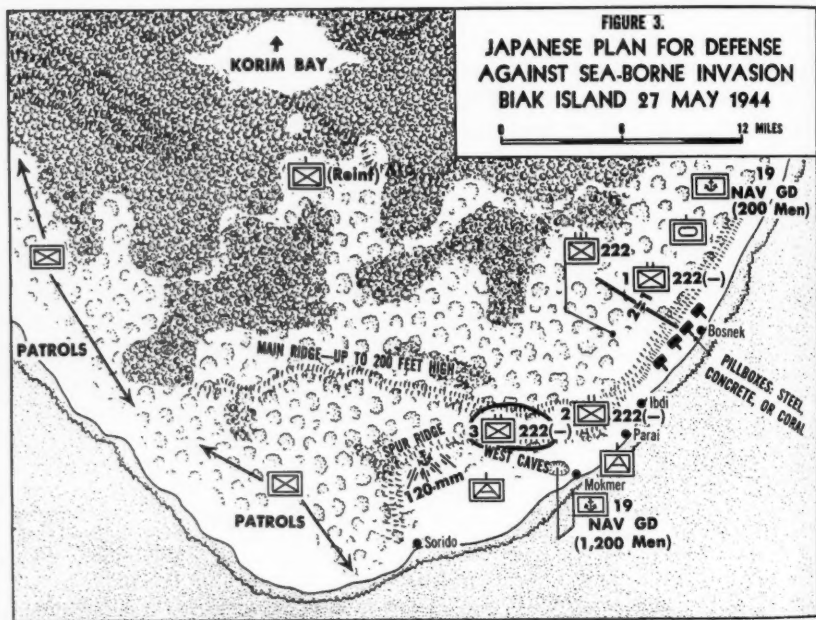
The Japanese initially intended to develop Biak into a tremendous ground stronghold as well as a major air base. However, on 9 May 1944, Imperial General

Headquarters moved their Southeastern Pacific area main line of resistance west of Biak to Sorong and the Halmaheras, and Biak was left as an outpost—one which was to be held as long as possible in view of the A-GO naval concept.

Contrary to allied beliefs, 10,000 enemy troops were on Biak—of which 4,000 were combat effectives. The remainder (service troops) were armed as auxiliary

Senda, a naval base construction expert, and Lieutenant General Takazo Numata, Chief of Staff, Second Area Army, inspecting Biak's defenses. Colonel Kuzume was thus assured of valuable and mature counsel.

Faced with the problem of defending an extensive coast line and offshore islands, the Japanese commander chose to concentrate his defenses on terrain, the reten-



infantry and were so used throughout the operation. Colonel Naoyuki Kuzume, a very capable officer, commanded the 3,000 men of the 222d Infantry Regiment, 30 light tanks (armed with 37-mm guns), field artillery and antiaircraft artillery units, and numerous service organizations. Colonel Kuzume also controlled 1,600 naval personnel, of which only 400 assigned to the 19th Naval Guard (Marines) had received combat training.

D-day found Rear Admiral Sadatoshi

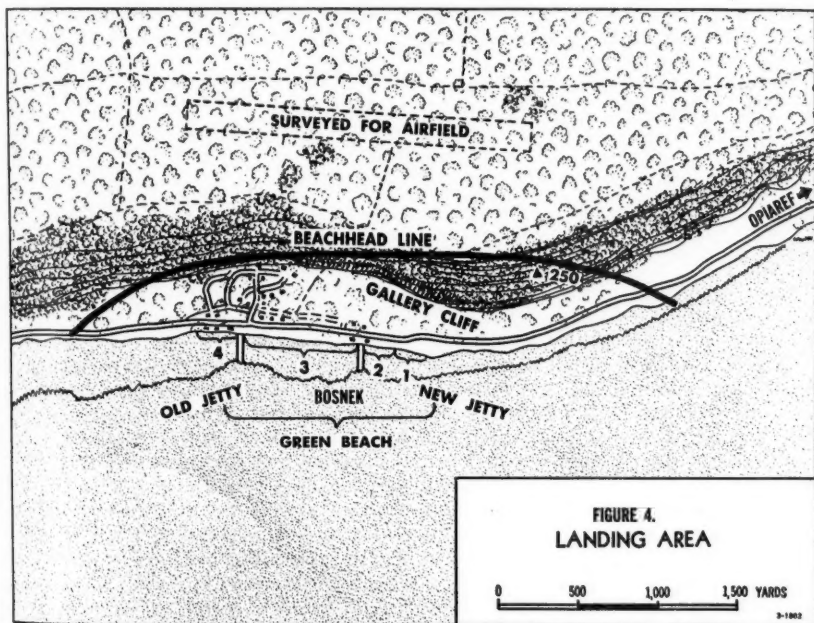
tion of which would prevent allied use of the airfields. On the terrain above the Mokmer airfield, Colonel Kuzume emplaced a formidable array of artillery, mortars, and automatic weapons within range of the Mokmer airfield, and partially within range of Borokoe. Four 120-mm naval dual-purpose guns commanded the sea approaches.

The key to the defense plan was the West Caves area which was ringed with pillboxes, bunkers, foxholes, and other

emplacements along the spur ridge. The Biak naval headquarters was initially located in the West Caves, but Colonel Kuzume planned to move there if his headquarters north of Bosnek became untenable. He knew that as long as the West Caves and the spur ridge were occupied by the Japanese, allied planes could not use of the airfield safely.

North of Mokmer, the East Caves were

site, although some haphazard beach defense had been established there. No underwater mines or obstacles had been emplaced, nor had wire barriers been erected. Such beach defenses as there were had no depth; they consisted of a single line of coral pillboxes, not all of which had overlapping fields of fire. A large steel pillbox, one of four planned, helped to cover the beach at Bosnek. Then time



made into a third strong point which controlled the coast road. There, the Japanese had mortars, 20-mm guns, and heavy machine guns, so placed behind coral walls that they could not be hit by aimed fire of any kind from any point.

Surprisingly, Colonel Kuzume made no early attempt to set up a defense in depth along the coastal road, although he had rightly selected the southern coast as the probable point of attack. Apparently, Bosnek itself was overlooked as a landing

appears to have run out before Colonel Kuzume could complete his plan which had been started on 17 May when the allies invaded Wakde.

To implement his defense, Colonel Kuzume planned to dispose his troops as shown in Figure 3. Although it was obvious that an allied attack was imminent, he thought, of course, that he would be warned in good time of the actual invasion. This was not the case, however, and his defense was not long in being tested.

At 270630 May, a salvo from the allied fleet, unheralded and obscured in morning mists, rudely awakened the Japanese defenders.

The Landing Plan

Let us return to the actual landing. The HTF had kept its rendezvous at sea with Task Force 77 and headed for Biak after dark on 25 May. An excellent selection of course and extremely good fortune combined to bring the large and slow (8½ knots) convoy into Geelvink Bay apparently undiscovered although hostile aircraft had passed the convoy on numerous occasions. In addition, D-day was overcast which, en route, was an asset; however, during the landing, it became something of a liability. Luck, not all of it good, played an important part throughout the Biak campaign.

There were few good localities for amphibious assaults on Biak. The Mokmer area was heavily defended. Coral cliffs at Parai and swamps at Ildi immediately behind the beach made landing there undesirable. Bosnek, although a relatively poor landing point, was chosen because cliffs or swamps did not back the beach there. The airfields had to be taken quickly but Bosnek (8 miles away) was the closest logical point to land.

Landing beaches were designated Green 1, 2, 3, and 4 as shown in Figure 4. The initial assault landings were to be made by the 186th Infantry Regiment in a column of battalions. The 2d Battalion was to land first on beaches 2, 3, and 4 and move inland to secure the center of the beachhead line. The 3d Battalion was to land at H plus 20, ensure the security of the two jetties, and anchor the western end of the beachhead line approximately along the arc of beach 4. Also at H plus 20, beach 1 was to be seized by Companies B and D (heavy weapons), 1st Battalion, with Companies A and C serving as the task force's local reserve.

Once the two jetties were secure, the

162d Infantry Regiment was to land on them, reorganize, and advance west rapidly along the coast road from Bosnek and seize the airfields. This drive was to be supported by eight tanks, which were to be put ashore from LCTs (landing craft, tank) *at any cost*, and by the 146th Field Artillery Battalion (105-mm howitzers).

The landing plan was thus simplicity itself, but for various reasons it did not evolve in the facile manner visualized.

Plans Awry

A westerly current, which had been expected but for which no allowance had been made, proved stronger than anticipated so that the troop transports stopped 3,000 yards west of Green beach.

To complicate the matter further, the overcast and the smoke and dust raised by the preliminary air and sea bombardment obscured the designated beaches from a distance of more than 400 yards from shore. As a result, the 2d Battalion, 186th Infantry Regiment, and Battery C, 121st Field Artillery Battalion (75-mm pack howitzers), landed in the mangrove swamp at Ildi. Companies I and K of the 3d Battalion landed alongside to the east, but on dry ground. Infantry of the 1st Battalion attempting to land on beach 1 landed on beach 3 instead. The oncoming boat wave of tanks did not know this. Without infantry support, the eight LCTs bearing the tanks were initially repulsed at beach 1 by a few die-hard and dug-in Japanese. Four tanks subsequently were discharged there into 3 feet of water and soft sand for which no matting had been provided and were temporarily lost. The other four tanks turned back and were landed later onto the new jetty.

Despite the confusion, the commander of the 186th Infantry Regiment organized the units at Ildi and had them under his direct control near Mandom by 0740. He estimated that this half of his regiment

was already far west of the proper landing beaches. He also knew that the landing had become disorganized and that the rest of the boat waves were being delayed until the situation was cleared. In addition, he had discovered that pre-invasion terrain studies were almost valueless; the ground simply was not as it was represented to be. Therefore, the regimental commander inquired of HTF whether it might not be feasible to switch missions with the 162d Infantry Regiment and so permit him to start moving west at once toward the airfields. The immediate reply was that the 186th Infantry Regiment was to continue with its original mission and secure the beachhead.

Accordingly, at 0745, Companies I and K, followed by the 2d Battalion, started moving east from the swamp area at Mandom. These two companies reached their planned locations on the beachhead line about 0845. Deployment was put off until the 2d Battalion, coming along behind, passed through. As elements of the 2d Battalion continued on through the jetty area, Companies L and M of the 3d Battalion and the 186th Infantry Regimental headquarters landed there. As the latter units attempted to move *west*, confusion was experienced with the 2d Battalion units moving *east*. To add to the difficulties all around, just as the tail of the 2d Battalion was clearing the new jetty, the task force local reserve (Companies A and C, 186th Infantry Regiment) and some artillery landed on the new jetty. By now the situation at the eastern end of the beachhead had degenerated to a point where souvenir hunters arrived from the transports and stevedoring showed signs of imminent collapse.

It was 0930 before this melée was untangled and 1030, some 3 hours off vital schedule, before Companies I and K could report as being on their originally planned positions and organized for combat.

This series of small unit movements could have had the most dire consequences with any sort of Japanese reaction. Most important, however, was the passing of time. The initial asset of surprise was being wasted and was dwindling away.

Mokmer Airfield—Almost

The 162d Infantry Regiment began landing shortly after 0900, principally on beach 4, assembled smartly, and immediately moved west along the coastal road, 3d, 2d, and 1st Battalions in column facing west. The 1st Battalion was to maintain contact with forces in the beachhead and protect communications. By 0930, the lead battalion (3d Battalion) had passed the point at which the first assault waves of the 186th Infantry Regiment had come ashore more than 2 hours earlier. Soon the Parai defile, not shown on any issued maps, was encountered. Although there were yet no large Japanese forces stationed along the 200-foot-high cliff, the few troops that rushed there after the landing had such a tactical advantage that it was mid-afternoon before the 3d Battalion, with the help of tanks and rocket-equipped LCIs (landing craft, infantry), got through the defile and secured the jetty at Parai.

Company E of the 2d Battalion, which had been attempting to advance along the coast ridge as a flank guard, found the going impossible and rejoined the battalion.

At the close of D-day, the 3d and 2d Battalions dug in about 1,000 yards east of Mokmer village, within sight of the airfield. The 1st Battalion stopped at Ibdì.

D-Day Air Support

The luck of the HTF, which had offset the shuddering possibilities of the confused landing, held equally good in the air situation. Despite the closeness of numerous hostile airfields, no Japanese air attack developed until 1600 on D-day

when four medium bombers and several fighters appeared. The bombers were shot down and the fighters driven off.

The reader will remember, however, that there was no carrier based air support for the Biak assault. Close air support for the forces ashore and temporary spotting for artillery was to come from medium bombers and fighters operating from Wakde, 180 miles away. These aircraft were to maintain an air alert over Biak from first light to dusk on D-day. At Wakde, D-day dawned overcast and squally and this bad weather prevented the arrival of close-support aircraft over Biak until 1100. The weather was better at Biak and Japanese airfields were only minutes away. However, the enemy air did not react. A very serious situation, considering the congested transport and beach area, was thus happily avoided.

Is All Well That Ends Well?

Despite the hectic day, there was indeed good reason to be optimistic about the outcome of the Biak operation by nightfall of D-day. Initial surprise was so complete that the pillboxes at Bosnek and the towering ridge behind were virtually unoccupied. The one Japanese platoon that was on the ridge co-operated by committing suicide *en masse*. The landing, although confused, had fortunately

been unopposed. All of the troops and supplies had eventually come ashore and the beachhead was secure. No large, organized bodies of Japanese had been raised nor had any effective ground defense system been uncovered. Japanese air reaction had been ineffective. Artillery was emplaced to support further advances. The 162d Infantry Regiment, it seemed, was well on its way to the airfields.

The Japanese, however, were soon to change to pessimism any high hopes the HTF commander may have possessed for early victory. The enemy soon overcame what must have been shocked surprise and confusion which was even greater than that experienced by the invaders. However, several indications of increasing resistance soon took form. There was the stubborn delay at the Parai defile. Foreboding reports were received from air and naval observers of significant enemy troop movements. After dark, Japanese patrolling became intense and bold. Artillery and mortars on the heights found the range of our forces near Mokmer village.

Unknown to us then, of course, the enemy leaders held a council of war and Lieutenant General Numata assumed command from Colonel Kuzume. The new commander's first order was the epitome of simplicity and direction—*attack!*

The American soldier is a proud one and he demands professional competence in his leaders. In battle, he wants to know that the job is going to be done right, with no unnecessary casualties. The noncommissioned officer wearing the chevron is supposed to be the best soldier in the platoon and he is supposed to know how to perform all the duties expected of him. The American soldier expects his sergeant to be able to teach him how to do his job. And he expects even more from his officers.

General of the Army Omar N. Bradley

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MILITARY NOTES

AROUND THE WORLD

UNITED STATES

Fast Camera

The staff of the University of California's scientific laboratory at Los Alamos, New Mexico, has developed one of the fastest cameras ever built.

The camera can photograph explosions at speeds up to 3,500,000 frames a second, for use in atomic research. That is about 150,000 times as fast as the usual picture you see at a movie theater.—News release.

Midget Craft

The Navy is developing midget mine-sweepers and submarines that can be launched from "mother" ships.

The "baby" submarine is still in the planning state, but 50 of the new "mine-sweeping boats" already are under construction.

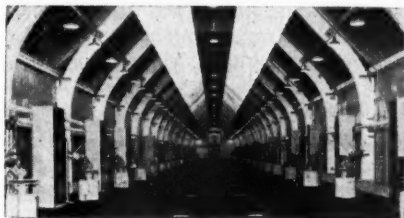
Development of the midget craft represents an innovation in tactics. The Navy used "mother" ships in World War II to carry amphibious landing craft to combat areas, but it has never employed the on-the-spot landing technique for combat vessels.

The eventual tactical purpose of the small submarine is still secret. It could be used, however, for sneaking into enemy ports, stalking enemy submarines, or possibly as an advance station for directing guided missiles onto their targets.—News release.

Shooting Gallery

Navy scientists expect to be able to improve the design of rockets through the use of a giant shooting gallery at the United States Naval Ordnance Test Station, Inyokern, California.

Rockets are fired through an 18-inch



hole in the end of a 500-foot shed (top photograph) and they are then photographed in flight by 23 pairs of electronically controlled cameras inside the shed (bottom photograph). Each camera takes six exposures on a single plate.—*Popular Science Monthly*.

Jet Fighters

The Air Force has ordered a substantial number of the new *F-100* jet fighter, designed for aerial combat at speeds faster than sound.

Because of Air Force security restrictions, no data on the new plane's configuration or performance characteristics can be released.—News release.

Bazooka Tester

A pocket-size instrument is being produced in quantity to aid in the proper operation of the Army's famed antitank weapon, the bazooka. Called a "bazooka tester," the device is used to check the firing mechanisms of the rocket-launching weapons before they are placed in action. It is carried as standard equipment by the various military units which operate bazookas.

The specially designed portable instrument indicates faulty firing mechanisms which do not develop sufficient electric energy to fire the fuze of a rocket.

The device consists of a conventional indicating panel-type instrument that is operated by the output from a vacuum-type thermocouple. The firing mechanism of the bazooka develops energy from a "flip-flop" magnet inside an induction coil, and this energy is used to fire the fuze of the rocket. In testing the firing mechanism, the energy is dissipated into the vacuum thermocouple where it is indicated in millivolt seconds.—*Army Navy Air Force Register*.

Labor Force

The Census Bureau announced recently that this country's swelling population will probably provide about 22 million more candidates for jobs by 1957 than now. The bureau estimates that the 1957 labor force—people working, looking for work, or in the armed services—would total 89 millions. This compares with about 67 millions at the present.—News release.

Telephonic Robot Device

An electronic device has been developed that can "understand" and recognize spoken numbers.

The robot is named "Audrey," a contraction of "automatic digit recognizer." It has a special circuit to determine automatically which of 10 numbers, from "1" through "0" has been spoken into an ordinary telephone, and responds by flashing an appropriate light.

The mechanism, however, engineers say, could control other operations, such as dialing, equally well. Thus, Audrey might be the forerunner of future devices that would allow putting phone calls through automatically, simply by speaking the desired telephone number into the mouthpiece instead of dialing it.—*Science News Letter*.

Stratojet Bomber

A single Boeing *B-47 Stratojet*, on 47 simulated combat missions, recently covered mileage equivalent to nearly nine times around the world in reaching the half-way point of a 1,000-hour "shake-down" program.

The airplane averaged better than a flight every other day over an 81-day period, with no flight lasting less than 8 hours. On three occasions flights were made on four consecutive days, and on six occasions two flights were made the same day.

Boeing test pilots, conducting the program in co-operation with the United States Air Force, flew nearly half the missions at night in attaining the 500-hour mark, and made 39 routine contacts with a *KC-97 Stratofreighter* tanker for aerial refueling.

In all, 217,805 statute miles were flown, carrying the airplane over 33 different states. In addition, 10 functional check-out flights were made which were not figured in the time and mileage totals.—News release.

Stratosphere Chamber

What happens to electronic equipment as it travels through space will be studied in a new "stratosphere chamber" now in operation at Fort Monmouth, New Jersey.

Nicknamed the "tea kettle," the new chamber makes it possible for the first time to provide temperature and pressure conditions similar to those found on the earth's surface and in the upper atmosphere.

Actually a pressure cooker in reverse, the new chamber decreases the pressure inside the boiler-like contraption until it is 1,000 times more rare than found at the earth's surface. Although the "tea kettle" can boil water, the water cannot get hot. It is also a freezer, for it can operate at minus 150 degrees Fahrenheit.

Built to help find the answers to unsolved meteorological problems, the new chamber will permit scientists to study what actually happens in the upper atmosphere.—News release.

Floating Coveralls

The Navy has developed a new kind of coverall with built-in water wings to protect submarine personnel should they be swept overboard into churning seas.

The coveralls will be particularly useful on subs equipped with snorkel tubes. Because of their streamlined design, snorkel-type subs do not offer crews as much protection on deck as older types do.

Should the sailor be carried overboard by a wave, he can inflate his water wings by pulling a cord that releases carbon dioxide into the life vest. With boots and mittens on, the sailor can stay afloat in the ocean without getting wet.

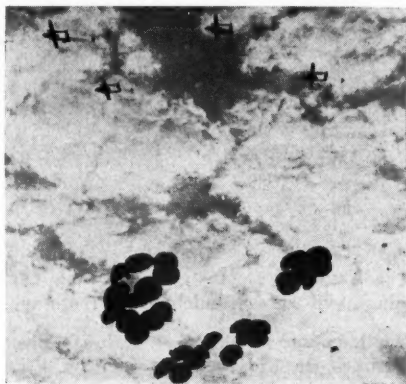
The rubber boots have a steel ring imbedded in their tops. An expandable rubber cuff attached to the trouser leg of the coveralls stretches over the boot's ring, providing a watertight seal. The same arrangement is used to seal on the mittens.

—*Science News Letter*.

Heavy Equipment Drop

Army engineers and Air Force troop carrier crews set an aerial delivery record and opened a new phase of airborne operations recently by dropping approximately 400 tons of special construction vehicles in the first mass paradrop of heavy engineering equipment.

Simulating the establishment of an "invasion airhead," a mass flight of 40 C-119s



Engineer construction equipment being dropped during the simulated "invasion."

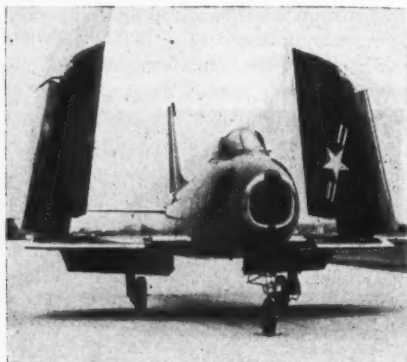
parachuted pieces of equipment weighing as much as 10½ tons into the area on as many as six 100-foot chutes.

As soon as the air-dropped vehicles hit the ground, combat engineers started work on a 4,000-foot air strip to receive C-124 transports loaded with troops and equipment necessary to establish the airhead and press the invasion. By evening, 85 percent of the vehicles were operable, and by the following morning, all but one piece of construction equipment were in use.

The operation was staged to prove the theory that a mass paradrop of heavy equipment would enable engineers to build an advance air strip capable of handling transports as large as C-124s which would put men and materials within striking distance of the enemy.—News release.

Swept-Wing Fury

The United States Navy recently accepted the first production model of the *FJ-2 Fury*, a 650-mile-an-hour swept-wing carrier based jet fighter (MILITARY REVIEW, Jun 1952, p 63). Although similar in



The Navy's new *FJ-2 Fury*, showing how wings fold for convenient carrier storage.

configuration to the *F-86 Sabre*, famed victor of the Korean skies, the *FJ-2* is an entirely different airplane designed especially for carrier operations. It is a development of the *FJ-1 Fury*, straight-wing jet fighter which was the Navy's first operational jet.—News release.

Civil Defense Radio

Civil defense authorities want a small, low-cost radio which can receive emergency information during a bombing attack in the event of power failures.

The Federal Civil Defense Administration says it is working with government experts and the radio manufacturing industry to develop such a set on a mass-production basis.

Electric power failure, according to the FCDA, will not appreciably disrupt transmission by radio stations, since most of them have alternate sources of power. However, a failure might silence many household receivers.—News release.

Armored Fire Power

When an enemy is hit by an Army armored division, he faces a powerful combination of fire power and maneuverability—a total of 373 tanks: 58 light tanks, 69 heavy tanks, and 246 medium tanks.

An Army infantry division now has a total of 149 tanks—9 light and 140 medium—while an airborne division has 142 tanks—4 light and 138 medium.—*Army Navy Air Force Register*.

Desertion

The military forces have been authorized to treat as a deserter anyone who is found absent without leave (AWOL) with the intent to dodge hazardous duty or to escape military service altogether.

The Defense Department issued such a directive after receiving reports from the Army of an increase in the number of short-term AWOLs among men who were under orders to get ready for shipment to the Far East.

The directive does not change the rule which classes as deserters all absentees who have been missing for 30 days. It does give the services authority to tighten up on treatment of men who remain away from their units or assigned posts for less than the 30-day period.—News release.

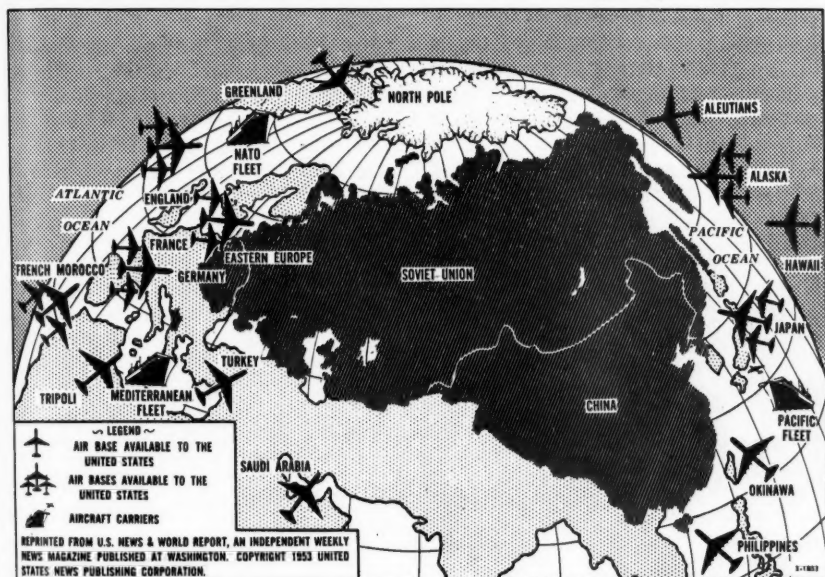
Vinyl-Base Paint

A fast-drying paint used to cover the bottoms of wooden Coast Guard boats is saving the Government \$50,000 a year, according to a report by the Coast Guard.

Developed by the wartime Office of Scientific Development and Research, the paint dries in about 30 minutes. Often a single coat does the job formerly done by three coats of regular paint.

The secret of the paint lies in its vinyl resin base which permits a much greater amount of cuprous oxide to be used. Cuprous oxide is the element which combats marine growth.—*Science News Letter*.

United States Power Reaches Out: The Soviet Union Is Ringed by These Bases



Rubber Compound

A new easy-to-handle silicone rubber that bends without cracking, even at 120 degrees below zero Fahrenheit, has been developed to meet new design requirements of the fast-growing aircraft industry.

Called SE-550, the rubber can be made into gaskets, fuselage equipment seals, and wire insulation for America's super-modern planes that now streak through the thin upper atmosphere where temperatures fall as low as minus 67 degrees. The rubber also can be used in military ground equipment designed for the frigid Arctic.

The rubber actually does not become brittle until temperatures fall well below minus 120 degrees Fahrenheit. Yet at plus 500 degrees Fahrenheit, the substance still resists heat well. The new compound can be milled and extruded easily and resists tearing when pulled from hot molds.—*Science News Letter*.

Tank Production

Assembly line production of the Army's *T43* heavy tank will soon get underway.

The *T43* will mount a 120-mm gun, the heaviest ever carried on a high-speed tank. Specifications on the *T43* have not been made public yet, but it is expected to be America's answer to the Soviet *Josef Stalin III* tank.—*Army Navy Air Force Journal*.

Two New Antibiotics

Doctors are about to have two more antibiotics, so-called mold remedies, to prescribe for their patients. One, called magnamycin, is effective against germs that resist penicillin, aureomycin, and terramycin. The other, called viomycin, is a new antibiotic against tuberculosis, which has undergone trials at Fitzsimons Army Hospital. Magnamycin is already on the market, and viomycin soon will be available.—*Science News Letter*.

BRAZIL

Volunteer Force

Brazilian Army veterans who fought in Europe in World War II plan to organize a volunteer force for Korea.

A Rio de Janeiro newspaper, *Tribuna da Imprensa*, said that the volunteers plan to ask the President to authorize the constitution of a volunteers' group to join United Nations forces in the Far East.—News release.

UGANDA

Dam-Building Plan

Great Britain and Egypt have announced agreement on a joint dam-building plan which will roll back the jungles of central Africa and bring water and prosperity to parched lands of the upper Nile. Under the pact, Egypt is to pay to have an extension built on top of a dam that the British are building astride Owen Falls, a jungle waterfall in Uganda on the Victoria Nile running out of Lake Victoria. To Uganda the project will mean electric power. To Egypt it will mean irrigation control in thirsty farm lands 1,600 miles to the north.—News release.

INDIA

Rice Substitute

India is testing a possible synthetic substitute for rice, with a higher food value than natural rice, to help fight the country's perennial food problem.

The artificial rice, which is produced from tapioca and peanuts, will cost less than imported rice.—News release.

Mica Supply

India owns 80 percent of the world supply of mica, of which the United States imports the major portion. The deposits in India, which are mainly in the Bihar State (northeastern India), are considered to be the finest in the world because of their large size and the perfection of the crystal plates.—News release.

USSR

Air Link

Direct air service between Riga, capital of Soviet Latvia, and Novosibirsk, in central Siberia, was inaugurated recently, according to an announcement by the Riga radio. The 2,500-mile flight takes 17 hours, with stops at Moscow, Kazan, Sverdlovsk, and Omsk.—News release.

ITALY

Supply Port

Brindisi, a port on the lower Adriatic, has become the gate of entry for a steady stream of United States warplanes destined to bolster the fighting strength of Italy, Greece, and Turkey.

During the past year, 50 supply ships have unloaded 360 planes and several thousand tons of other arms at this port.

Supplies landed at Brindisi are divided roughly in thirds for distribution to the three countries. At big rebuilt jet plane bases inland from the port, both Greece and Turkey maintain crews of assembly mechanics and ferry pilots.—News release.

THE NETHERLANDS

Duplicate Records

The Netherlands is making duplicates of all municipal registers for safekeeping abroad in case of war.

The Home Minister stated that the German occupation taught the Dutch that it was important that all population registers should be destroyed just prior to invasion.—News release.

TURKEY

Trade Pact

Turkey and Yugoslavia recently signed a trade pact in Ankara, which will involve transactions totaling nearly 40 million dollars. Yugoslav purchases from Turkey will include cotton, wheat, and dried fruits in return for iron, cement, shipbuilding materials, and other unspecified items.—Turkish Information Office.

FRANCE

Military Aircraft

France is producing military aircraft at the rate of 500 a year and could double that output if she only had the money, according to an announcement by the Secretary of State for Air. Production emphasis this year will be on the *Mystere II* and *Mystere IV* jet fighters.—*Aviation Age*.

EASTERN GERMANY

Aircraft Industry

Eastern Germany is beginning to create a pool of technicians for her embryonic aircraft industry.

At present only gliders and small jet plane components are manufactured in Eastern Germany. However, Rostock University on the Baltic coast has opened a faculty for aeronautical science, and *Der Morgen*, the East Berlin newspaper, reports that 300 students have been enrolled.—News release.

National Budget

Eastern Germany's Premier recently presented a 1953 budget equal to about 8½ billion dollars. He urged economies in many fields to ensure enough funds for the Government's "defense" program.

As with all Communist-controlled countries, the budget as made public gave no details of expenditures in any specific field, including military allocations. The total budget was about 750 million dollars higher than that of last year.—*The New York Times*.

JAPAN

Middle East Trade

The Japanese Government is sending a trade mission to five Middle East nations to negotiate trade agreements.

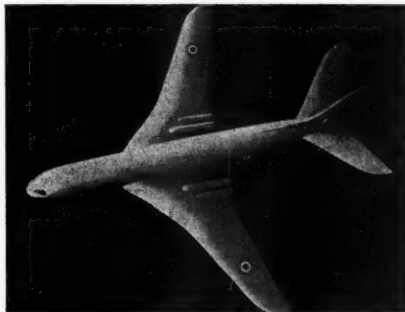
The newspaper *Asahi* says the mission will seek to improve the presently dull trade situation by arranging pacts with Iran, Iraq, Syria, Lebanon, and Turkey.—News release.

GREAT BRITAIN

Military Transport

A British aircraft company has been authorized to start work on a prototype military transport—the Vickers 1000.

Approximate dimensions for the new transport will be: span, 140 feet; length, 146 feet; and height, 38½ feet. It will be powered by four *Conway* jet engines. The



A model of the Vickers 1000 jet transport.

Vickers 1000 will be a low-wing monoplane with a wing pattern somewhat similar to that of the *Valiant* bomber; both the main plane and the tail plane swept back and the engines completely enclosed in the wings. No figures for performance or capacity of the aircraft have been released.—British Information Services release and photo.

Crescent-Wing Jet

Great Britain's new crescent-wing jet bomber—the *HP-80*—will be called the *Victor*, continuing the "V" trend used in naming the *Valiant* and *Vulcan* four-jet bombers (MILITARY REVIEW, Apr 1953, p 69).—*The Aeroplane*, Great Britain.

GREECE

Trade Pact

A trade pact of 18 months' duration was signed recently by Greece and Italy. The value of goods to be exchanged amounts to slightly more than 14 million dollars.—*The New York Times*.

KOREA

Australian Squadron

Australia's *Meteor* jet squadron in Korea has flown more than 10,000 sorties against the enemy. The squadron entered the conflict 6 days after the North Korean Army invaded South Korea.—News release.

BELGIUM

Aircraft Contract

Belgium recently ordered a substantial number of twin-engine *Pembroke* general purpose aircraft from Great Britain for use by the Belgian Air Force.

Already in production for the Royal Air Force, the *Pembroke* is a development of the *Prince* and *Sea Prince*. In addition to a crew of two, the plane will carry eight passengers, a considerable quantity of freight, or six stretcher patients. The *Pembrokes* for the Belgian Air Force, while capable of carrying out the same duties as the RAF versions, will be fitted with a transparent navigator-bombardier type nose and camera hatches for aerial survey and photography.—News release.

SWEDEN

Jet Aircraft

Four Swedish Air Force wings, at least, are now flying the swept-wing Saab J-29 fighter and several more are slated to receive this model. Other plans are to equip all attack wings with the new *Lansen* ground-attack fighter design.—*Aviation Age*.

Uranium Production

Sweden will start uranium production in the near future, according to an announcement by an official of the state-owned Atomic Energy Company.

The uranium will be produced at an extraction plant now under construction in Kvarntorp, central Sweden, where uranium is found in layers of shale and in coal. It will be used in a reactor now under construction in Stockholm.—News release.

NORWAY

NATO Command

New headquarters buildings for the North Atlantic Treaty Organization's Northern Command are under construction at Kolsaas, near Oslo.—Norwegian Information Service.

Defense Reorganization

The Government has made public a comprehensive proposal outlining recommendations for reorganization of the national defense to facilitate Norway's integration with the North Atlantic Treaty Organization. The 325-page document is due to be submitted to Parliament in the near future.

Among the problems dealt with in the proposal are suggestions for co-ordinating Norwegian defense with the NATO organizational machinery, and the problem of dividing Norwegian fighting forces into Norwegian-commanded and NATO-commanded units, in case of war on Norwegian territory. As recommended by the Government, the commander of the NATO Northern Command would be placed in charge of defense operations on Norwegian soil in areas designated as theaters of war, while Norwegian authorities would be responsible for the defense of all other areas.—Norwegian Information Service.

Offshore Procurement Program

The United States Army Ordnance Corps has established an office in Oslo to facilitate purchases in Norway under the offshore procurement program.—Norwegian Information Service.

NATIONALIST CHINA

Population Increase

Taipeh, the capital of Nationalist China, has trebled in size since the end of World War II. Swollen with Chinese who fled the Communists on the mainland, the city has a population of about 600,000.—News release.

WESTERN GERMANY

Indonesian Ship

A shipyard in Bremen recently began construction of the first ship ordered by the Indonesian Government from Western Germany.—*The New York Times*.

Savings Plan

United States soldiers in Germany are now saving about 20 million dollars a year under an Army payroll savings plan.

Figures show that total deposits average slightly more than 1½ million dollars a month. On an average, 38 percent of the troops in Germany save part of their pay under the plan.—News release.

Foreign Students

The total of foreign students engaged in advance studies in Bonn is the largest since the close of World War II, according to *Deutsche Korrespondenz*, official newsletter of the West German Government.—*The New York Times*.

SWITZERLAND

Patton versus Centurion

The Swiss Army will test the relative merits of the American 42-ton *Patton* tank and the British 52-ton *Centurion*. The results will decide which tank the Army orders.

Great Britain is working on a 90-million-dollar order, placed by the United States, to supply Holland and Denmark with *Centurions*.

Great Britain claims a lead in tank design with the *Centurion*. It carries a 20-pounder (about 83.5-mm) gun, said to be the most accurate ever produced. It has a top speed of 25 miles an hour, amazing hill-climbing powers, can turn in its own length, and has exceptional resistance to mines.

Champions of the *Patton* say its 90-mm gun can outshoot the *Centurion* and its greater horsepower makes it faster and more mobile.—News release.

AUSTRALIA

Antisubmarine Aircraft

The Royal Australian Navy has ordered 40 *Fairey Gannet* antisubmarine aircraft from Great Britain. The aircraft, which will cost about 8½ million dollars, will be delivered in 1955. It is expected that 37 of the planes will be used for operational purposes and 3 for training.—*Australian Weekly Review*.

Guided Missiles

Intensified activity on guided missiles at the Woomera Rocket Range is planned for this year, according to an announcement by the Supply Minister.

He also stated that: "Facilities for testing guided missiles at Woomera are the most modern yet devised and as far as it is known this testing ground is the only one in the world providing all-round facilities where the climatic conditions enable uninterrupted operations throughout the year. The length of range available at Woomera ensures that within the foreseeable future there will be no range limitations on the kinds of weapons which can be tested there."—News release.

Industrial Forecast

According to an article in the official publication *National Development*, within the next few years Australian industry is expected to increase gasoline refining capacity by 600 percent, copper production by 100 percent, coal mining capacity and cement making capacity by 50 percent, iron making capacity by 45 percent, and paper and paperboard capacity and lead and zinc production by 25 percent.—*Australian Weekly Review*.

EGYPT

Egyptian Air Force

As the result of a recent decree, the former Royal Egyptian Air Force is now to be known simply as the Egyptian Air Force.—*The Aeroplane*, Great Britain.

COMMUNIST CHINA

Air Line Developments

Communist China and the Soviet Union have three trunk air routes (covering some 7,000 miles) linking northern China with Siberia. The routes all connect Peking with other important points in northern and western China, and with Siberian and Central Asian cities of the Soviet Union.

The Sino-Soviet Aviation Company, which operates all three lines, is supposed

king to Kalgan, then north across the Gobi Desert to Ulan Bator, in Mongolia, and then to Irkutsk, just west of Lake Baykal. Irkutsk is well served by Aeroflot.

The western route involves flights across some of the world's wildest country. Aircraft fly 2,500 miles from Peking southwest to Sian, then west to Lanchow, and northwest across Siankiang to Tihwa and to Alma Ata, in the Kirghiz Republic of the Soviet Union.

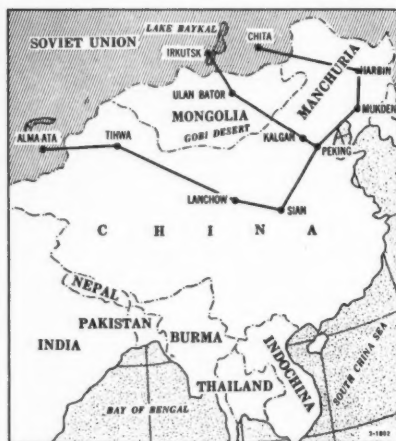
The report claimed that 19 airports at unspecified places have been built to serve the air lines. Probably many of them were already in existence when the Communists took over China in 1949. Regular air services were never attempted to most of these points because of the difficulty of bringing in fuel, spare parts, and the supplies necessary for efficient operation.

Lanchow was accessible by air, but, because of the absence of roads and railways, aircraft had to arrive with enough fuel to return to the better-equipped bases. Payloads, therefore, were small.

The Communists claimed recently that they had opened a 215-mile stretch of railway linking Lanchow with Tienhsui, previously the western railway terminus. This would greatly facilitate air services in the area.

Ulan Bator, however, is still believed to be nearly 300 miles across desert country from the nearest rail terminus at Irkutsk. Unless aircraft make the flight from Kalgan to Irkutsk (about 1,600 miles) without refueling, gasoline must be brought in by caravan, which was never believed to be commercially feasible.

In spite of these difficulties, the Communist progress report said it had been possible to reduce tariffs twice, while "financial receipts and disbursements have met the requirements of the state."—*The Aeroplane*, Great Britain.



to be a joint company, but it is controlled by Soviets whose function is to train Chinese in all phases of air line operation. Information on the company is contained in a progress report which has found its way to Hong Kong, and which speaks of the "rapid growth" of the air line and its network.

The eastern route runs from Peking to Mukden and Harbin, in Manchuria, then cuts northwest to Chita, in southern Siberia, just east of Lake Baykal. This is in the area of one of Siberia's most important industrial regions. It is on the Trans-Siberian Railway and is served by the Soviet air line, Aeroflot.

The northern route runs west from Pe-

FOREIGN MILITARY DIGESTS

The Balance of Power, the Cold War, and Us

Digested by the MILITARY REVIEW from an article in "The Hawk," The Journal of the Royal Air Force Staff Colleges (Great Britain) December 1952.

IN THE past, the traditional British policy of the balance of power has been concerned almost solely with Europe. It has had two main aims: that no nation should be allowed to develop such strength that it could dominate the Continent, without some equal counterforce being built up to oppose it, and that no great European power should occupy the Low Countries.

Over the years and within the political intrigues of Europe, Britain has acted as the deciding weight to tip the balance against one European ambition or another. Now we have thrown our weight, and money, on one side of the scales and now on the other. Our treaties, alliances, and bribes have not been decided on any moral issues but purely on arguments of national expediency. We have earned by this habit of alternately discarding and raising up our friends a reputation for cunning diplomacy and perfidious statesmanship, of our actions being less honest than our protestations. However, just as it is the duty of each man first to secure the salvation of his own soul, so it is the recognized duty of the politician to secure the safety and prosperity of his own

country. This self-interest has dominated all political exchanges and there is no reason to suppose that the future politician will not continue to act under this same impulse. It follows that however much idealism the modern parliamentarian may inject into his thought and his expression, his actions are almost unfailingly selfish.

Wars Generated in Europe

Although the two major wars of this century were *world wars*, they were both generated in Europe and, for all their world-wide implications, could only have started when power in Europe had been allowed to get out of balance. German power was allowed to build up on one side of the scales without a counterweight. Such a thing could, and might, happen again, because the *balance of power* is a system operated by the human mind and, therefore, fallible. It is arguable that in applying this system Great Britain has delayed many wars but prevented none; in forestalling the war of today we may even sow the seeds of tomorrow's conflict.

Throughout the years since Walpole

conceived the device of playing one European nation against another, the statesmen of this island have been able to exert an influence in European and world politics out of all proportion to the size of the country. They have been able to bargain against the background of our unchallengeable power in one element, the sea. Although the fleets that could exert that power were often greatly neglected in peacetime, nevertheless Europe learned that, when Britain was once roused, the mobility of the Royal Navy and its control of the seas were the ultimate factors which brought victory in the land battle to Great Britain and her allies. In our naval arm we held the final weight that was required to tip the scales.

World Politics Are Power Politics

History has shown that there are no world politics that are not power politics, and that influence in world affairs is directly dependent on military strength and wealth. As our wealth declined in the twentieth century, so our bargaining power was reduced; as we disarmed our forces and reduced our fleets, so our voice in the world was heeded less. The time finally came between the two world wars when our voice was not merely unheeded, it was mocked. There was no longer a *Pax Britannica* imposed on the seven oceans by the British Navy backed by British wealth. The fleet had been reduced by drastic disarmament and the entire structure of our world power, the economy of our islands and the moat around our shores upon which we had so long relied, seemed outmoded and threatened beneath the gathering cloud of air power, as yet untried. Thus, in 1934, when every tenet of our historic diplomatic catechism told us that we should throw our weight on the opposite side of the scale to Mussolini, we did not dare. We feared for our Mediterranean fleet and how it would

fare beneath the weight of Italian air power which we had allowed to grow unbalanced by any counterweapon of our own.

In the game of international politics, the influence that a country's actual power can exert is dependent to some extent upon the assessment which other nations make of it. We showed the world in 1934 that we had lost faith in our ability to redress the balance in an unbalanced Europe. Our enemies, our allies, and our would-be friends did not miss this point, and, consequently, our later efforts to woo Italy, appease Germany, and gain the Soviet Union as an ally were so much wasted endeavor. We had been assessed as weak and faltering and dismissed as a serious factor in European power politics.

Between the wars, we pinned our faith on the ideal of the League of Nations. We then relearned slowly, and with dismay, that our possessions remained the envy of our neighbors, that peace did not exist of itself, and that our heritage and way of life were always in jeopardy unless we possessed the means to defend them. We might well have forgotten this lesson again but for the clumsy way in which the Soviet bear dug his claws into the European honey-pot immediately after the second world war, which brought us to our senses.

A Balance of East and West

This time, however, the setting is different. It is not simply the European scales that are out of true, but a world balance—a balance of East and West. Every conflict heretofore has been preceded by certain critical political exchanges, the final adjustments of weights in the balance. There have always been some countries whose intentions were in doubt, as were the Soviet Union's in 1939 when both Britain and Germany were autograph hunting at the Kremlin stage

door. The coveted signature went into Hitler's album and weighted the scales, albeit temporarily, in his favor. However, today there is no major nation in the world which has not already been forced, by the actions of the Soviet Union, to declare its allegiance. There is no power unit whose intentions are in doubt. The critical political maneuvers which usually precede war by a matter of days are already completed, and this middle twentieth century period is not so much one of diplomatic juggling over acres of the earth's surface as a struggle over the minds and wills of men. Certainly the Kremlin appears to desire the territory of others, and in this she is no different from any other acquisitive power in history, but first she desires their souls. It is something of a paradox that diplomacy and war in Europe have usually been practiced by professedly Christian men for purely material gains, but now the "cold war" is being waged by essentially atheistic men for the spiritual allegiance of mankind.

In previous periods of international tension, the points at issue have been relatively easy to grasp. One nation desired that which another possessed, or desired power for its own sake, and went to war to obtain it. There was, however, no particular clash of ideologies; one Christian fought another for honor, gain, power, or territory. There was no organization of international subversion set up by the would-be aggressor in time of peace; treason was the trade of relatively few. Never before has there been so much effort expended on inducing world-wide treachery to established order. No government or social system in the world today is wholly free from the threat of disruption from within by the force of Communist propaganda.

Although the marginal countries round the borders of the USSR are the present scenes of the power struggle and are,

therefore, important, yet in the old sense of the phrase there is no balance-of-power problem today, since there is no floating power to be won to one side or the other. The power struggle is one of material production and scientific development. Man, however, is endowed by God with free will, and the true struggle is to decide whether the mass of individual wills is to be enslaved or freed.

A Continual Battle

No struggle that is won in this world remains won; all battles have to be fought and refought, and even to hold a position a man must fight at least as hard as his enemy. We have twice ended world wars, impoverished but victorious, with an idea in our minds that, since we have crushed one tyranny, no other tyrannies can exist. We have seen ourselves heroes and sought the land fit for heroes to live in, but have been disillusioned to find that all that we fought for seemed lost. In fact, it was all lost because we ceased to fight; a real hero, having overcome one giant, would turn to face the next and not retire complacently to seek a peaceful asylum. While we retired after the second world war a new tyranny spread its empire. The Soviet Union used its massive strength in the border countries to impose its will by force or threat. Since then the USSR has made no effort to conceal the methods of her future strategy. The physical battle she will continue by proxy, as in Greece, Korea, and Malaya; the spiritual struggle she will continue by subversion. However, the core of her philosophy, which she does not hide, but which we forget, is that ultimately her communism must clash with our freedom in a ghastly world revolution from which the Soviet Union will emerge victorious.

All our policy and our cold war strategy and tactics should, therefore, be directed to confound the enemy's dogma that a collision between East and West is, in due

course, inevitable. The Communist can argue that since this conflict is unavoidable there is no reason, on his side, to indulge any policy that might appear to further peace. Believing that communism and capitalism are incompatible, he must be in the most advantageous position when the storm, the predestined world revolution of Leninist theoreticians, breaks on the world. It is, therefore, quite clear that the USSR and her satellites must not be allowed to gain any technical or military advantage in peacetime. This means that the build-up of forces of the West and the development of military science must continue. Unfortunately, there is no single shred of historical evidence to convince us that an arms race of this nature can by itself prevent a war. In a sense, it is an endeavor to balance the powers of the world; but, as has been remarked, although such a balance may delay the conflict, it cannot by itself ensure that the conflict never comes to pass.

What other action is there open to the free world, and to us in particular, in the cold war? We are already committed to a scale of rearmament that stretches our economy to its limit and are, therefore, playing our part in the world power balance. We have seen that world influence depends on wealth and power and that we are at present not overendowed with either. Have we not something to offer in the spiritual battle, the fight for the allegiance of men's minds to a free way of life against the forces of subversion and Communist nihilism?

Our aim today seems to be to hold the present position, to contain the enemy both militarily and in the war of ideas. This is a policy of maintaining the *status quo* and preventing any further encroachment of communism outside its present borders. It supposes that communism and democracy can live in the world together, and condones the accomplished fact of the

enslavement of millions of reluctant subjects of communism in *perpetuo*. The Kremlin, however, does not accept co-existence with us in mutual toleration as a valid proposition; the Soviet revolution is centrifugal, and to endeavor to oppose it by a policy of "thus far and no further" is to condemn the world to an unpredictable number of years of the mental and spiritual stresses of the cold war.

Whatever we do must not increase the likelihood of war, which we now know to create problems more intractable than those it solves; therefore, militarily we are obliged to contain the enemy. Surely, though, we are not also bound to be on an ideological defensive? Or have we so little faith in what we have to offer? It would be to our advantage could we crusade the Christian heritage we possess under a Christian banner; but even in this age of unbelief we can at least declare for the freedom, the standard of conduct, and the dignity of the individual in which we do believe. It is not only the enemy who has a fifth column of active workers; there exists an enormous potential of underground strength in the millions of subjected peoples who once knew the real meaning of freedom but whose faith may despair unless it is sustained by our active sympathy and aid. They make up in actual numbers a multitude whose co-ordinated expression no tyranny could withstand. Time, however, is not on our side for with the passing of each generation the numbers who know God and knew freedom are reduced. That is why the present seeming contentment with the policy of holding the ring does not operate in our favor; on the contrary, it allows the enemy steadily to improve his position.

The problem, it would seem, is to sustain the faith of those who still love liberty, to reassure them that we are working for them by every means short of a declaration of war against their oppressors, to urge them to form cells of resist-

ance, as do their enemies, and to try to educate those born in bondage to a knowledge of their true dignity against the day when the pressure from without and within can sunder the chains that bind them to Soviet Russia. This presents a problem of dissemination of information, of passing propaganda through the Iron Curtain, that is considerable, but, remember, even to hold a position a man must fight at least as hard as his enemy. Our enemy is feeding words into his typewriters, printing presses, and microphones in a constant stream, which reach the world as propaganda and ideas, the basic weapons of the cold war.

Co-ordinated Effort Required

Any effort that we make would have to be co-ordinated and sustained and undertaken in the full realization that it will expose many people to suffering and martyrdom. If the conception of "one world" is to mean anything, then we must work for our fellow men whom we truly believe to be enslaved against the will of the majority. Simple charity and their belief in the dignity of the individual dictate such a policy for Christians; and, even for those who lack an appreciation of the brotherhood of man, mere self-interest and national survival insist that the canker of communism be fought so that it shall not spread further and poison our system also.

Sadly enough, the influence that even our ideas may exert on the world of today is still related to our strength and wealth and to the assessment that our enemies, our would-be friends, and our underground supporters make of that power. Therefore, such power as we enjoy, and it is not inconsiderable, must always be used when the maintenance of our world position demands it, or when any default would weaken the faith of our supporters in our ability or our will. We must not

repeat such an adventure as the recent display of force in Iran, which, when challenged, was not used. When a man turns to face a tyranny which has the power of life and death over his whole family, he must be sure that such outside support as he has been offered is constant and not vacillating.

There is much insistence in the New Testament on the obligation to love one's neighbor, the whole teaching being crystallized in the question: "Which of these was neighbor to him that fell among robbers?" and the reply, "He that showed mercy to him," but more important still, the command, "Go and do thou in like manner." Where does our true duty to ourselves and to others lie? Can we remain complacent in our narrow, national, little worlds and shrug our shoulders as we, like the priest and the Levite, pass by the millions from Estonia to Bulgaria who have fallen among robbers?

See again the question, "Who is my neighbor?"—read the answer and hear the command; then, surely, we must step forward to expose the lies, answer the insults, denounce the persecution, and combat the evil to which our fellow men are daily subjected. We can defeat the enemy with his own weapons—words—if we apply ourselves to the science of propaganda. It is only by turning the minds of the world against the Kremlin that we will turn the point of its sword away from ourselves. We have much evidence that truth is what the great men of the Soviet Union most fear; we must have faith that truth will ultimately prevail.

For we wrestle not against flesh and blood, but against principalities, against powers, against the rulers of the darkness of this world, against spiritual wickedness in high places.

Wherefore take unto you the whole armor of God, that ye may be able to withstand in the evil day, and having done all, to stand.

Ephesians 6: 12, 13

Tito Builds Air Power With Aid From the West

Digested by the MILITARY REVIEW from an article by
William Green in "Canadian Aviation" August 1952.

SINCE the final rift between Yugoslavia and the Soviet Union in 1948, tension in the Balkans has reached a dangerous high, and there are many who ask if the first shots of the third world war will be fired in the country which gave the ominous word "Sarajevo" to history.

A Dual Strategic Problem

Faced on all sides, except on the Adriatic, by territorially ambitious enemies backed and armed by the Soviet Union, Yugoslavia's unenviable position has grown steadily more precarious, for the Yugoslav General Staff is faced with a dual strategic problem: If an attack came from Albania or Bulgaria, then the Yugoslav forces would be involved in mountain warfare in which they excel. However, if, as is more likely, the attack were to be launched across the broad northern and eastern plains from Hungary and Rumania, the Yugoslavs would be caught out in the open against Soviet-supplied armor and a strong enemy air shield. Tito is well aware that he could fight such a war only with the aid of the West.

By the end of 1950, Hungary had increased her Army by 230 percent over the permitted figure; Rumania had increased her Army by 217 percent; and Bulgaria by 300 percent, with even greater increases in air strengths over and above those allowed by the terms of the armistice agreements. Tito has a good cause to fear that his Soviet "satellite" neighbors, now with more than a million men under arms, might march on him without warning as the North Koreans did against South Korea. Their troops would be preceded by waves of Soviet-built ground-assault airplanes, with strong fighter top cover and masses of Soviet T34 tanks.

Marshal Tito claims that he can call

upon 1½ million men in an emergency, although for the present his Army comprises some 250,000 fully trained infantry troops, 75,000 crack security troops, and 50,000 militia. However, although possessed of crack troops, the Yugoslav Army seriously lacks heavy equipment, and it will be some time before arms aid deliveries from the West can rectify this situation. In the meantime, the largest Yugoslav gun foundry, at Kragujevac, south of Belgrade, is only turning out mountain guns and small arms, while shortages of raw materials and machine tools have excluded the manufacture of all but a few tanks to supplement the 500 acquired originally from the Soviet Union—more than 50 percent of which are now unserviceable.

The Air Situation

However, it is in the air that Yugoslavia feels her weakness most keenly, for the Yugoslav Air Force, with some 10,000 men and a paper combat strength of about 500 airplanes, largely Soviet in origin, is short of spare parts, and succeeds in keeping a reasonable proportion of its aircraft airworthy only by recourse to cannibalism.

Strenuous efforts are being directed toward reviving and expanding the small prewar airplane manufacturing industry, and every encouragement is being given to young national designers, but, apart from material considerations, lack of experience and know-how precludes the possibility of producing nationally designed combat airplanes of accepted modern standard. Moreover, current products are limited, through a lack of suitable power plants, to light training and attack machines.

However, the design of original air-

craft power plants is being undertaken, some promising work on aircraft diesels is currently in progress, and, as an interim solution to the first-line equipment situation, quantities of operational aircraft are being supplied by Great Britain and the United States.

The prewar Yugoslav air arm was a moderately efficient force which had no chance to oppose seriously the *Luftwaffe*, most of its first-line equipment being destroyed on the ground during the first stages of the German onslaught. The Yugoslav Air Force, as it is presently constituted, obtained its first airplanes on 21 May 1942—now celebrated in Yugoslavia as Air Force Day—when partisans captured two German fighters during a raid on an enemy-occupied airfield.

Later, numbers of promising young partisans were sent to the Soviet Union for flight training, while the United States Air Force and the Royal Air Force supplied combat airplanes to the first Yugoslav combat formations. By 1946, the Yugoslav Air Force had regained its prewar strength and had become a force to be reckoned with by Southeast European standards. Its aircraft were largely Soviet built, and its organization was based broadly upon that of the Soviet Air Force.

All plans for the further expansion of the Air Force collapsed with the expulsion of Tito from the Cominform. Supplies of airplane spare parts and fuel were immediately cut off and the Yugoslavs were thrown back on their own inadequate resources. Serviceability rapidly decreased and Air Force morale fell with the dwindling fuel reserves. Tito's attitude toward Western military aid was extremely cautious, and as recently as February 1951 he was declaiming loudly that Yugoslavia would not buy arms from the West, presumably a reflection of his desire to give the Kremlin no semblance of an excuse to claim that the Yugoslavs were conspir-

ing with the Western bloc to wage war against the Soviet Union.

However, instead of abating, tension in the Balkans and pressure upon Yugoslavia increased, and in June 1951 Tito's cautious policy was dropped and his chief of staff arrived in Britain to confer with United States and British officials on the possibility of acquiring arms for the



The S-49C fighter—a rehash of the Soviet Yak-9—used by the Yugoslav Air Force.

Yugoslav forces, the result being the signing of a Mutual Assistance Pact in November 1951, under which the Yugoslavs receive substantial arms aid from Great Britain and the United States.

The reasons for this sudden *volté-face* were manifold: with every increase in the Soviet squeeze on Yugoslavia and with stepping up of border incidents, Tito realized that brave words would provide no protection against armored columns and air attack, and the Korean conflict had taught him that the Western allies meant business in resisting world aggression. Again, the cost of assistance from the West did not involve the subjugation of Yugoslavia.

In the event of war, it is quite clear that unless Tito wishes again to fight a guerrilla war in the mountainous areas, abandoning the plains to the invader, he must get substantial help from the West in the form of armor, artillery, and, above all, modern combat airplanes. The Yugoslav Air Force is totally lacking in airplanes of a quality capable of staving

off the first air blows of any attack. It is primarily tactical in function, and, like the Soviet air arm upon which it was originally modeled, is subservient to the requirements of the Army. The organization of the Yugoslav Air Force is based on a series of air regiments and groups.

An air regiment at full strength con-



The twin-engine Milutinovic *Type 215* crew trainer of the Yugoslav Air Force.

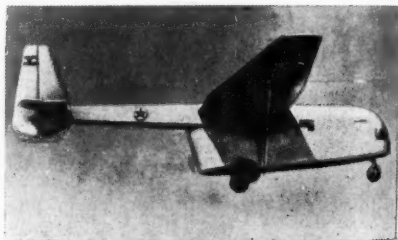
sists of between 7 and 10 squadrons, and a group comprises 3 squadrons. Squadron strength is normally 10 airplanes, with 3 or 4 reserve machines, and a separate ground organization exists for servicing and maintenance.

Types of Aircraft

Although the comparatively formidable force of a few years ago is now no longer capable of sustained operations, because of the depredations of the past 4 years (cannibalism and lack of fuel and spare parts), the fuel situation has considerably improved during the past 2 years. Apart from newly acquired De Havilland *Mosquitos*, the most widely used operational aircraft is the *S-49* single-seat reconnaissance fighter which, although claimed as an original design, is actually a re-build of the *Yak-9* single-seat fighter which was standard equipment before the break with Moscow. Small quantities of *Il-2*, *Il-10*, and *Pe-2* attack airplanes are still serviceable, but these will be relegated to reserve units with the arrival of replacements from the West.

The previously mentioned *S-49* is now the standard Yugoslav single-seat reconnaissance fighter, although it cannot be considered seriously as a modern machine. It differs from the standard *Yak-9* in a number of respects, featuring modified nose contours, a redesigned tail assembly and cockpit hood, increased armament—four 12.7-mm machine guns in the nose decking and one 20-mm cannon firing through the airscrew hub—and various internal modifications. The latest production version is the *S-49C*, which features some detail refinements.

Two nationally designed twin-engine military trainers made their debut in 1951, the Stankov *Type 214* and the Milutinovic *Type 215*, both of which can be adapted for ground-attack duties. The Stankov *Type 214* is a twin-engine, low-wing monoplane with a retractable tail-wheel-type landing gear. It is primarily intended for pilot instruction, and it shows considerable *Pe-2* influence. Pupil



An experimental troop-carrying glider designed for use by the airborne forces.

and instructor are seated side by side, and a manually operated rear-firing gun turret is positioned over the wing trailing edge.

The *Type 215* is intended to furnish all types of crew training from gunnery and bombing to navigation and radio. Like the *Type 214*, it is a twin-engine, low-wing monoplane with a braced twin fin and rudder tail assembly, retractable main landing gear members, and a fixed tailwheel.

Other products of the reformed airplane industry include a variety of light training airplanes of wooden construction and powered primarily by engines acquired from Czechoslovakia and Poland before the breaking off of trade relations. The most widely used trainer of national design is a side-by-side, two-



Two Yugoslav trainers—the *Type 211* (foreground) and the *Aero 2* (background).

seat elementary trainer known as the *C-3 Trojka*. It is of all-wood construction and possesses a top speed of 100 miles an hour and a range of 376 miles.

The designer of the *Trojka* also helped to produce the *Aero 2*, which is built both as single- and two-seater models, with and without enclosed cockpits. A twin-float seaplane version, known as the *Aero 2H* is primarily used as a tow plane for water-landing sailplanes.

Other recent Yugoslav trainers include the *Type 211* tandem two-seat monoplane with open cockpits and a fixed undercarriage; the *Type 212*, a development of the former with a faired canopy enclosing the cockpits and a forward-retracting landing gear; the *Type 213* two-seater with retractable undercarriage; and the *KB-6* side-by-side, two-seat cabin monoplane, similar in general appearance to the *Trojka*.

Although lacking modern combat airplanes and the wherewithal to produce them, Yugoslavia does possess one

major aviation asset worth mentioning: a strong cadre of competent and well-trained pilots, forming an invaluable Air Force reserve which will pay dividends as more modern combat airplanes are delivered from Great Britain and the United States. This reserve of pilots is the direct result of state-financed sport flying which provides all the necessary facilities for a wide range of aviation interests and owing to which the youth of Yugoslavia are, on the whole, rather more air-minded than those of Canada, Great Britain, and the United States.

There are numerous flying clubs throughout Yugoslavia administered by the Aeronautical Union of Yugoslavia, the national governing body. The clubs vary considerably in size and distribution, the larger towns sometimes possessing two or three with sections for parachuting, gliding, and powered flying.

The West is now committed to aiding the Yugoslavs, but it would be well to



The twin-engine Stankov *Type 214* pilot trainer used by the Yugoslav Air Force.

remember that Yugoslavia is still a Communist and totalitarian country. Its principles are diametrically opposed to those of Canada, the United States, and Great Britain, and although there may be some signs that the rigid totalitarianism of the typical Communist police state is being ostensibly abandoned, Yugoslavia is far removed from a liberal democracy.

Why Guided Rockets Are Top Priority

Digested by the MILITARY REVIEW from an article in the "Soldier" (Great Britain) October 1952.

ONLY a dozen years ago the art of intercepting hostile aircraft was not far out of its infancy. Gunners often had more faith in a blind barrage than in predicted shooting; and in any event, predicted shooting was possible only when the target was visible to the human eye.

In the forcing-house of war, the technique of antiaircraft gunnery developed prodigiously. Today unseen targets can be tracked automatically by radar and the guns themselves are becoming more and more automatic.

Unfortunately, the targets of tomorrow (especially rocket bombs of the V-2 type) may fly far beyond the range of the British Army's (or any other army's) heaviest antiaircraft guns, even with all their latest modifications. There is little consolation in being able to track such targets by radar if there is no means of destroying them.

Headache for Antiaircraft Artillery

The higher and faster the target, the worse the headache for the orthodox antiaircraft battery. All that the existing guns can do—assuming the target is a piloted one, and within range—is to aim their salvos at a mathematically predicted point in front of it; but in the half minute or so that the salvos are hurtling aloft the pilot of the aircraft can take evasive action and dodge the estimated "point of destruction" by perhaps a couple of miles. This is the old, old "Ack-Ack" problem.

So it is not difficult to see why Britain is now devoting "super-priority" to the development of guided missiles. In their interceptor role, these missiles must be able to seek out not only a 600-mile-an-hour bomber, but an unpowered rocket

of the V-2 type streaking through the sky at 3,000 miles an hour or more.

The Minister of Supply has told how Britain's guided missile industry is being built up rapidly with the aid of the best brains and resources of the aircraft, engineering, plastics, electronics, instruments, explosives, and chemical industries. Already there are guided rockets which "can travel at well over 2,000 miles an hour." There is still much work to be done and time is precious.

When the Secretary for War presented the Army Estimates last March, he stressed that at present the airplane had a marked superiority over ground defenses, and that until mass production of guided missiles was in sight, the Army would have to continue modernizing its orthodox guns and fire control equipment—an "expensive and difficult procedure."

The major peril in any future attack on Britain seems likely to come from high-level attack, but the risk of low-level attack is not being overlooked. After all, the V-1, which caused immense damage until it was mastered, was a low-level weapon.

The German V-2, which at least three big powers have been developing since the war, reached a height of more than 60 miles at the top of its trajectory, and could traverse a horizontal span of about 200 miles. Its downward speed was estimated at 3,000 miles an hour, which sufficiently accounts for the well-known fact that "no one saw it coming." Only in approximately the last 7 miles of its flight was it within range of 3.7-inch antiaircraft guns. In fact no V-2 was engaged by antiaircraft fire, although an experimental "better than nothing" plan had been worked out on paper.

It is safe to assume that the V-2 has

now been developed out of all recognition. The Americans have announced a rocket which travels at 5,000 miles an hour (at which speed the moon is only a couple of days away).

Principles of Control

The general principles along which guided interceptor missiles can be controlled are no secret. When fired, a missile of this type would be tracked by radar, as would its target. The missile is steered into the path of the target, to a point where its own built-in radar can take over and "home" on to the target. Once in immediate range, a proximity fuze in the warhead of the interceptor missile ensures the annihilation of the target.

Alternatively, a radio beam can be projected on to the incoming target, and the interceptor missile, by means of its built-in electronic devices, made to ride the beam.

Television also can be used to steer unguided missiles, although its scope is limited by darkness and bad visibility.

Theoretically there is another way in which guided missiles fired by an enemy power can be neutralized. The target, instead of being destroyed, would be decoyed—by "jamming" the radio or radar devices by which it is steered.

Postwar Research

Britain's postwar rocket research has been conducted in considerably more secrecy than America's. Many stories have been written about the eerie goings-on at the White Sands Proving Ground in New Mexico, where day after day rockets rip into the blue, tracked from the surrounding hills by motion picture cameras, astronomical telescopes, and radar. The more expensive rockets "talk back" as they climb, giving the ground

engineers all the information they want about meteorological and other conditions.

During the late war, rockets were used on a limited scale by the Antiaircraft Command against raiding aircraft, but these were not guided missiles. A salvo was exploded at a predicted point in the sky.

A Double Role to Perform

One point which must not be overlooked is that "Ack-Ack" has a double role: it is static and mobile. Guided missiles must be developed in such a way that they can be fired in the field.

In his book *Ack-Ack*, General Sir Frederick Pile, who commanded Britain's antiaircraft defenses throughout the late war, foresaw the new kind of aerial warfare:

The target, whether bombers or rocket planes, will be picked up automatically; the defense rockets will be fired at them at the most suitable moment—also automatically.

It seems to me that science can and will do all these things, and the only real skill for the man on the ground will lie in his technical aptitude to keep all his instruments up to the highest possible standard.

Only the researchers know how near that day may be.

Meanwhile, what of the existing anti-aircraft battery? Let no one think that its guns and fire control equipment have ceased to be useful. Although the anti-aircraft gunner may be hard stretched to engage the highest and fastest of the new aircraft, he can still do much to embarrass the pilot, forcing him to take avoiding action and making it impossible for the bombardier to take accurate observations.

If the aircraft is carrying an atom bomb, the question of pin-point accuracy in dropping may be of small moment, but it must not inevitably be assumed that the "next war" will be an atom war in all theaters, or indeed in any.

Australia and the Empire

Digested by the **MILITARY REVIEW** from an article by Captain M. Harrison in "An Cosantoir" (Ireland) November 1952.

THE principles governing Imperial defense were agreed upon at a series of conferences held before World War I. Each dominion was to be responsible for the defense of its own territory. The Government of the United Kingdom agreed to maintain a naval force sufficient to protect vital sea communications and to cover the movement of reinforcements by sea to threatened areas.

In its application to Australia this policy was proved satisfactory when tested during World War I. The close of that conflict left the Dominion with highly trained reserves at home to ensure its local defense. In the broader sphere, Germany had been eliminated in the Pacific and her territories south of the equator were being administered by Britain. The only other possible aggressor being Japan (with no outpost closer than the Caroline Islands) it then appeared logical to examine Imperial responsibility in this light.

Since there was no naval base east of Malta which would serve the Navy for operations in the Pacific and Indian Oceans, Australia, New Zealand, and India indicated their desire for the establishment of such a base at Singapore. This was at the 1923 conference, and up to 1937, Australia pressed for the completion of this "key-stone of Imperial defense in the Eastern Hemisphere."

In fact, however, the base was not considered in this light by the Committee of Imperial Defence and the plan desired by the Commonwealth was not implemented. Instead, a new concept of Imperial defense was mooted in London, the dominions being encouraged to believe that a decision in war could be won by naval power alone and that the principal concern of Imperial defense was the maintenance of sea communications. Proponents of this idea

argued that if sea communications were left unsecured, Australian trade would be strangled completely by an enemy fleet and that this pressure would be as great as could be achieved by direct military action. On the other hand, an enemy who could not control communications could not send land forces in any strength to invest Australian territory.

This viewpoint, while it was accepted with many reservations by Australia, had a profound effect on her internal military policy. Since strong Imperial naval forces would render invasion impossible, there was little incentive to provide local forces.

The rather dubious background to Imperial policy toward the dominions is easily seen in the light of the "mother country's" efforts to keep to herself as many industrial and manufacturing enterprises as would continue to keep her population employed and the employers opulent. The dominions were designed to supply raw materials and food while they were to receive the products of British industry. Australia's dependence on the Royal Navy not alone for protection but for ships (since she could not build at home) was thus a deliberate action.

No Foreign Policy

Australia, in fact, had no foreign policy on which to base her military requirements. She was integrated with the United Kingdom and with Europe, and there was little appreciation of the fact that her destiny was linked with the Pacific.

The Munich crisis in 1938 struck a mortal blow to all previous conceptions of Imperial defense and Australia was projected into a new era. The weakness of Britain militarily by comparison with the Axis countries became obvious. The growing threat from Japan and the inability of the

British Navy to provide protection spurred Australia into a growing appreciation of her position. In the light of these facts, it was incumbent on the Dominion to fend for herself with all the means developed during the period between the wars.

By comparison with her state on the eve of the previous war, these means were considerable. Whereas, during World War I, Australia got but a little distance beyond providing its troops with uniforms, footwear, small arms, rifles, and ammunition, she could now produce in quantity a much greater variety of warlike stores, vehicles, ships, and aircraft.

In general, the problem in 1939 was a matter of changing over from peace to war production. The potential existed which could provide much of the needed equipment from steel helmets to bombers and destroyers. However, while the potential existed and could have been developed earlier, its growth had been stalled mainly by the Australians themselves who were so spiritually close to the mother country as not to appreciate their physical isolation. Believing as they did that "Britannia rules the waves" successive governments were elected to concentrate on narrow internal issues. Continued preoccupation with political tactics was, however, soon to be replaced by the immediate need for military strategists—in a country where no such mental background had previously been required of the various leaders.

The presence of no little confusion at Cabinet level was seen in the absolute thoroughness with which mobilization proceeded. It was so thorough that a partial demobilization became essential lest industry be brought to a standstill for lack of operatives.

Absence of a Plan

That no over-all strategy had been worked out to deal with the possibility of Japanese aggression—and the Japanese had been showing their hand since 1937—

was apparent in the 1939 strengths of the fighting services, particularly in the case of the Navy and Air Force. Total regular personnel of all three services in 1939 numbered 11,779 effectives. A militia of 34,624 effectives completed Australian military manpower. Expenditure for this force during the fiscal year 1938-39 was almost 14 million pounds, almost double that of the two previous fiscal years. In aircraft and ships the country was so deficient as to be ineffectual.

Still, unaware of the danger brewing in the north, Australia, rising to her Imperial commitments, dispatched a force to the Middle East. This force was recalled in 1942 when Japan, in defiance of "the White Australia" policy which had been so vehemently enunciated and so rigidly enforced, eventually began her migration under arms southward.

American military strength rescued the continent from the consequences of her failure to see herself as a Pacific entity. Contacts with Americans who saw the world as a sphere and not as a scattering of red patches on a Mercator projection did much to orient Government ministers and service commanders in a concept of global warfare which had never previously been entertained. These contacts, added to their own experience, taught Australians that the British version of Imperial defense had been completely inadequate.

Having learned the hard way under stress of war, and having been rescued not by the Empire's fleets but by those of the United States, it was very unlikely that Australia would revert to her old role as a dependency. Such reversion was, at any rate, rendered impossible by Britain's impotence at the war's end. Acting independently of the projected foreign ministers' conferences which were to decide the fate of the world, and also of the United Nations Security Council, the Australian Government acquiesced in accepting the role which its geography dictated. Henceforth

it is to be the power in Southeast Asia, a positive factor in Empire defense, co-ordinating its interests with those of the United States. "This war has confirmed Australia's nationhood" said the Australian Minister for External Affairs in June 1943, and like most young adults it was ready to strike out for itself as soon as it could disentangle from the Imperial apron strings.

Formation of New Policy

In 1944, the new policy was taking shape when it was announced that Australia would interest herself not alone in the local theater but also in areas far more distant and she was prepared to take action with, not alone Britain, but also Holland, France, Portugal, and the United States to provide effective security in the Pacific and Asiatic zones. In 1946, at a conference of dominion premiers and their military advisers in London, the new foreign policy was sanctioned, its details agreed upon, and Australia accepted the maintenance of Empire in the Southwest Pacific; encouraged from London to secure British interests by widespread collective security alliances. Persistence in the effort to attain this objective—collective security—is the most noteworthy feature of Australian foreign policy to date.

The 5-year defense plan promulgated in 1947 can readily be visualized as a major effort to provide for the immediate defense of the continent; easily seen, too, is the intention to relieve Britain of a great deal of her responsibility in the strategic sphere. It is not so easily seen, however, that the 5-year plan was the major instrument whereby the Dominion hoped to effect its foreign policy objectives. It was intended to show the potential partners that a weak Australia was not bent on sheltering under the American umbrella with the hope of gaining all the advantages of protection while incurring

none of the responsibilities. It was hardly entirely fortuitous that the Minister for Defence, on 4 June 1947, placed such a strong lever in the hands of the Minister for External Affairs for use during the latter's talks with United States Admiral Denfield which took place about a week later.

As far as Australians are concerned, the defense plan was presented in a manner which made clear the Government's belief that reliance on over-all schemes of collective security through the United Nations was currently futile and that real security could be achieved only by local effort.

While security in 1938 could be bought for 63 million pounds, it was valued in 1947 at 250 million pounds, and does not take into account the enormous stocks of warlike stores accruing from the wartime defense effort, the factories, and the base—all of which would have of themselves been sufficient to guarantee, within the old definition, the security of the continent for quite a time. The increase can be related very definitely to the new definition of security and its consequent impact on foreign policy.

By way of illustration of the new trend, it is interesting to compare the two attitudes, prewar and postwar, which prevailed in relation to the naval service since it is in the types demanded that the actual policy can be detected.

Naval Policy

In 1938, the role of the naval squadron was announced as "the defense of trade in Australian waters," which, it was decided, could best be done with cruisers, destroyers, sloops, and motor torpedo boats. The program visualized that by 1942, 5 cruisers, 4 sloops, 2 destroyers, and 12 motor torpedo boats would be in commission. The decision not to equip the Navy with a capital ship was made chiefly on the grounds that "we look to

Britain in an emergency to station at Singapore a fleet of sufficient strength to safeguard Empire interests in the Eastern Hemisphere." Likewise, it was decided not to commission any submarines, as they did not constitute "an effective weapon for the coastal defense of the Dominion."

When allotting the largest quota of the 5-year program to naval defense, the object of the new naval policy was announced as the "building up of a balanced force over a period of years which will be capable of operating as an independent force." As modern warfare had proved the carrier to be the successor to the capital ship, it was announced that 2 fleet carriers, each with a complement of 36 aircraft, would form the nucleus. Thus, in less than 9 years, Australia had progressed from coast defense to independent action. The total number of ships required to be on call by the end of the program is impressive; in addition to the carriers it included three cruisers, eight destroyers, and six frigates.

While in 1947 plans could be made against a background of peace, the succeeding year brought such deterioration that the newly evolved term "cold war" came more aptly to describe relations between the two major ideologies. In Greece, Malaya, and China, the pattern of Communist expansion was apparent; Jews and Arabs fought it out in the Near East; Hong Kong was threatened; Holland was losing her grip on her East Indies possessions; and in July came the first direct challenge by the Soviet Union to the West when Berlin was isolated.

This was also the year of the United Nations General Assembly in Paris, and as if to emphasize for Australia's benefit the precarious nature of world peace, Dr. Evatt was appointed President. This was probably the United Nations Organization's most unhappy session to date with General Marshall and Ernest Bevin

forthrightly condemning Soviet recalcitrance and Vishinsky denouncing the United Nations Organization's Balkan Commission, the Korea Commission, the Security Council for allegedly favoring Holland in Indonesia, and for not adopting a firm policy in Palestine. The Soviet delegate, by his direct denunciation of United States plans for control of atomic energy and its anti-Soviet military policy in general, foreshadowed just how ineffectual the United Nations Organization was to become as the instrument of compromise between conflicting major states.

Foreign Policy Aim

One Australian statesman, at least, did not have to read the circulated reports; he could hear from his presidential eminence the speeches and, no doubt, reflect their tone in subsequent discussion with his Cabinet colleagues. At any rate, the succeeding months saw an intensive drive to achieve the major foreign policy aim—the treaty of mutual alliance for the Southwest Pacific on the same lines as that of the North Atlantic. While India's refusal to become involved in such an alliance could be attributed to the admiration of her Premier for the Chinese People's Republic, the evasions of the United States State Department required some justification since American patronage was perfectly apparent not alone in the Atlantic but very much nearer home—in Japan, Korea, and the islands of the Pacific. The American taxpayer (or solicitude for his purse on the part of the State Department) ultimately, if indirectly, killed the project. It was reasoned that defense agreements in the Atlantic area were mutually supporting, being binding mainly on first- and second-class powers. American aid to Europe could readily be seen as an investment or as a loan to nations which were but temporarily insolvent and who would so use that aid as to be soon able to contemplate its repayment either

in security for the United States or in dollars. The accent could be on the "mutual" aspect of the pact—a return could be foreseen.

In the Pacific, no such mutuality was apparent. Australia, by accepted standards, was not a power, but rather a dependency like the Philippines, thus the conclusion of a pact with Australia would not confer further security on America.

Europe the 'Ground Vital'

The most important consideration, however, was that world peace was threatened definitely in Europe, and Europe was the "ground vital"; such disturbances as existed in the Pacific could be seen as nationalist growing pains, or postwar unrest.

The overtures made by Japan for inclusion in any defense agreement that might be reached and their adverse reaction on Australian public opinion finally convinced her statesmen that it was better, for the present, to drop the project and cleave to the Empire.

Between February 1949 and March 1950, the most significant developments were domestic, if plans whose ultimate aims were to develop the Dominion progressively into a world power could be so called. Early in 1949 the Snowy River project (ultimate cost 148 million pounds) was announced, its object being to establish a chain of 20 power stations to provide electric current. It was hoped that the cheap power so developed would attract British industry.

Strengthening Industry

It was left, however, to the Conservative Government early in 1950 to gather up this and other projects under one scheme and to place them all under a newly created Cabinet appointment—the Minister of Development. The development visualized the increase of population to 20 million persons while at the same time providing industry for the employment of

the additional 12 million persons and also an increase in agricultural production to ensure their sustenance. The subsidiary and luxury industries would, it was considered, inevitably grow with the population.

It was left to the Soviet Army newspaper *Red Star* to sum up Australian effort when in May 1950 it asserted that the Dominion was preparing to become "a Pacific arsenal of the Anglo-American bloc." The statement, while wildly inaccurate, had nevertheless its germ of truth, since it is out of the efforts of the population engaged in heavy industry that military strength accrues and is maintained.

Vindication of Policy Aims

In June 1950, the Communist forces of North Korea came south of the agreed boundary with consequences which are now well known. For Australia, this was a vindication of her policy aims; she was already preparing for the eventuality and could do little more than impress on her people the significance of the event. Compulsory military training, hitherto avoided because of its unpopularity, was decided on and first call-ups were to report in May 1951. The scheme in going as far as possible to meet the anticonscription tradition of Empire peoples everywhere bore the obvious defect of a too brief period of service—6 months. It was to be assisted, however, by a recruiting campaign which was designed to attract ex-service Britons to the Australian forces. Further, taking advantage of more amenable public opinion, Mr. Menzies on 22 September 1950, announcing a "major and crucial change in defense policy," stated that in the future, enlistment for service in the Army and Citizen Military Force would be for service anywhere in the world. More significant was the change from previous concepts of the role of the land forces, that is, home defense, and the realization that the defense of Australia might have to be undertaken in any theater.

In December 1950, the defense effort was co-ordinated by the institution of a Security Resources Board whose function is to organize the procurement and stockpiling of defense materials, to fix priorities, and resolve bottlenecks in supply.

The Peace Treaty

Jubilee Year, 1951, while it brought Communist strikes, manpower shortages, and discontented immigrants, also brought the Japanese Peace Treaty. In the wake of this treaty came the achievement—on paper—of Australia's major foreign policy objective.

Although a bi-partisan achievement, main credit for the Japanese Peace Treaty must go to Mr. John Foster Dulles, of the United States, a man consistently newsworthy, for his enunciation of a foreign political policy which might be expressed as aggressive containment. This policy requires that the United States take the initiative, that it should present from time to time to the Soviet Union and her satellites various political *fait accompli*. In its application to the Japanese, it meant that the terms of the peace treaty would be compiled in a form so palatable to the anti-Communist majority that its acceptance would constitute a display of anti-Soviet solidarity. In this the United States had most of the advantages since, unlike Germany and Austria, the entire Japanese Empire was controlled by General MacArthur. Soviet proposals could be ignored; its delegates might refuse to ratify, but they could not veto. The only conflicts requiring resolution would be those of the other parties.

The work commenced in June 1950 with a visit to General MacArthur in Japan, and the draft had taken sufficient shape to be ready for discussion in Canberra in February 1951, when representatives from Britain, Australia, and New Zealand met there.

This—the Commonwealth bloc—had to

be won over first. The Australia-New Zealand dilemma was that if Japan were allowed to arm she might again prove aggressive; if not, she might fall to the Communists who would surely prove a greater evil. The Japanese themselves appreciated that without continued American protection they would be defenseless and could not long hope to preserve the measure of independence which would be provided by the treaty. This fitted in well with American ideas. The outcome was that in addition to the proposed peace treaty, a pact of mutual alliance between Japan and the United States was signed. Using this pact as a lever, the Australian and New Zealand representatives gained, as their price for the support of the treaty, similar undertakings. The Philippines likewise benefited.

In addition to the pact, it was comforting to Australia to know that the terms of the Japanese Peace Treaty took from that country her mandated territories and those islands which she had successfully used to advance southward against the Australian mainland during World War II. Henceforth these territories would be held by the United States.

As a consequence of the various American concessions and contributions, Mr. Acheson, the United States Secretary of State, and chairman of the treaty conference, was enabled to state at its opening: "I am glad to welcome you to this conference for the signing of a treaty of peace with Japan."

Rules of procedure drawn up by the United States and Britain and quickly pushed through provided that no proposals for changes of the treaty terms need be accepted by the chair. Effective use of the gavel during the 5 days of the conference ensured that the Soviet, Polish, and Czechoslovak delegates could not delay the proceedings either by extraneous references or by filibuster. On 9 September, according to schedule, the treaty was

signed by the nations affected, less the Soviet Union and the two satellites.

Pacific Security Pact

Australia in signing was secure in the knowledge that on the eve of the conference, 1 September, at the same venue, the articles for the Tripartite Pacific Security Pact had been agreed to and initialed.

By April 1952, the pact had been put through the parliaments of the three countries concerned and was in force.

The articles, while incorporating the usual definitions and safeguards, also provide for the setting up of a council to consider implementation of the agreement. This council, limited to representatives of the signatories, has the responsibility to work out ways and means of providing the "force-in-being," the guns and manpower, the ships, bases, supplies, and chain of command, without which the pact is meaningless save as a gesture of good will, as would be the North Atlantic Treaty if it did not have its organization on the ground.

While the council has had only one meeting to date, British sentiment, currently outraged at British exclusion, may go a long way toward ensuring the postponement of effective action altogether. While according to the Statute of Westminster, Australia and New Zealand are independent countries and, thus, presumably competent to take independent lines of action, they are nevertheless bound to the Commonwealth center by numerous ties which are not now so much spiritual as political and economic. By exercising pressure in other directions Britain could conceivably force the dominions into line. The Pacific countries would not object to British representation on the council, but

the terms of reference do not provide for it.

The Americans, for their part, since they could not be said to have volunteered to participate in the first place, may use this squabble to delay the pact's effectiveness indefinitely; they have nothing to lose by such dalliance.

The complete answer is not to be found in America's alleged contention that she does not wish to be embroiled in what are manifestly purely British interests in the Far East; these could be specifically excluded and still permit of British participation. The full explanation may be bound up with Britain's recognition of Communist China in spite of American opposition, and in other minor divergencies. This may be the State Department's way of cutting the Empire down to size.

Put in its proper perspective, the Tripartite Pact is merely a step on the way to security, and since security is mutual it will not be provided entirely by America. The cost of the Australian contribution will be a strain both in money and effort, and with money losing its purchasing power concurrently with the need for still more expenditure, the price may prove excessive. The original 5-year defense plan has been submerged in increased requirements and growing costs. In February of this year the Minister for Defence stated that by the end of 1953 all the requirements necessary for total mobilization must be at hand, and he estimated that the cost of material needed would be more than three times the 1947 figure.

Thus far has been traced the military evolution of Australia from a state of dependency wherein her decisions were made for her in London, to her present independence.

The Battle Winner

Digested by the MILITARY REVIEW from an article by Major Reginald Hargreaves in "The Journal of the Royal United Service Institution" (Great Britain) November 1952.

IN THESE days it is accepted as axiomatic that mobility is the mainspring of tactical success, since without it it is almost impossible to employ that most invaluable of military devices—the element of surprise. Speed and daring, it is recognized, will invariably get the better of mere mass; since, as Alaric the Goth so trenchantly pointed out, "The thicker the wheat, the easier it is to cut."

Yet, singularly enough, the concept of mobility as the master device in warfare's well-stocked repertoire is of relatively recent date. The classic phalanx of the Greeks, Macedonians, and Dardanians was characterized rather by ponderous weight of impact than by celerity of movement. Even the Roman Legion, despite its fringe of *ferentarii*, or lightly armed skirmishers, was a solid rather than an agile body; a battering ram rather than a lightning stroke, which relied upon its crushing strength and iron discipline to hew a way to victory rather than to achieve triumph through speed of maneuver. As Kipling, in his memorable *Puck of Pook's Hill*, put it, through the mouth of the Centurion—himself a British-born Roman—addressing his men of the 13th Legion:

To tell the truth, they taught me the Roman step. You see, I'd only served with quick-marching auxiliaries. A legion's pace is altogether different. It is a long, slow stride, that never varies from sunrise to sunset. "Rome's Race—Rome's Pace" as the proverb says. Twenty-four miles in eight hours, neither more nor less. Head and spear up, shield on your back, cuirass-collar open one hand's breadth—and that's how you take the Eagles through Britain—and the world.

But a processional pace, such as the *Passo Romano*, on the line of march is apt to foster a habit of mind which puts a premium on "slow motion" when it comes to battle-fighting.

Mobility in the individual soldier is

largely a matter of the weight of the arms and equipment with which he is burdened; with the unit, a question of the speed attainable by its transport.

A Weighty Problem

The Roman soldier, weighed down with helmet, cuirass, greaves, shield, a heavy *spathae* (or sword), a lighter *semispathae*, five loaded javelins for use as missiles, and two more of, respectively, 5½ feet and 3½ feet, for close combat, plus—on the line of march—rations for at least 3 days, a section of shelter tent, a mess kit, cooking spit, pot, drinking cup, a basket of spare clothing, and either a spade, saw, pickaxe, or sickle, was about as suitably equipped for nimbleness in action as the White Knight in *Alice in Wonderland*. His personal belongings, carried on a forked pole, could, on occasion, be deposited with the general baggage—tents, grain mills, extra *pila*, and the artillery—the bulk of which was transported by pack animal. For the approach march, however, the legionary was usually encumbered with a burden of some 70 to 80 pounds, in addition to the very considerable weight of his body armor and weapons.

All in all, it is little to be wondered at that with the Roman generals a high standard of mobility was not the overriding desideratum it was subsequently to become. In the outcome, admirably as they knew their men would fight if brought to combat, the majority of the pro-consuls came to abide by the axiom of Vegetius, that "it is better to overcome the enemy by famine . . . or terror than by general actions; for in the latter, fortune often has a greater share than valor." In effect, Rome's headlong decline as a military power can be attributed as much to its

neglect to cultivate mobility—and, therefore, battle-winning superiority—in its troops, as to the invertebracy of its reliance on foreign auxiliaries to fight those battles it had been unsuccessful in avoiding.

The earlier medieval armies executed few maneuvers and essayed few surprises beyond a virtually static *ambuscado*. A head-on crash, followed by a ding-dong exchange of "hand-strokes," was mostly the way things went; with the heavily armored cavalry lumbering up to try and overwhelm "the rabble of foot" by sheer strength and weight. Even when the bowman changed the whole complexion of the contemporary battlefield by demonstrating the power resident in deftly wielded missile weapons, frontal attacks were still persisted in, with an almost total disregard of the opportunities for surprise offered by swift maneuver on the flanks.

Unpracticed in Maneuver

It is true that at Crécy (26 August 1346) the English right flank was protected, to a degree, by a thick belt of forest. However, there was nothing to prevent the French from making a swift, wide sweep and attacking King Edward's left flank and rear from the northeast. Even the forest belt was not impenetrable, nor the stream of the Maye, which lay between it and the English right, unfordable. Apparently, however, the possibility of such movements on the flanks never so much as entered the Frenchmen's heads. In any case, the force at King Philip's disposal was so unpracticed in speedy maneuver that any such attempt would undoubtedly have been stillborn. In the result, the French and their allies advanced in the primitive, conventional style, with the crossbowmen in the van. These, when outshot and reduced to demoralization by the English archers, broke up in confusion, leaving the issue of the day to be determined by the armored cavalry,

on their clumsy chargers. Hindered by the disordered mob of retreating arbalesters and slowed down by the quagmire at the foot of the slope on which the English were deployed, the horse became little more than a sitting target for the hail of shafts that poured in on them.

However, although the lesson of Crécy was perfectly clear—that a master missile weapon can only be successfully competed with by "containing" the front and initiating swift and resolute action on the flanks; as General Patton put it, "Hold him by the nose with fire and kick him in the pants with movement"—it was to be many a long day before the moral achieved general recognition.

The medieval army on the line of march—even on an approach march—was a perfect example of a formation slowed down by the pace of its sluggish transport. March discipline was virtually nonexistent; and only with the pikemen was some attempt made to march in step, mainly with the laudable idea of keeping the shouldered weapons clear of each other.

The Tail Wagged the Dog

However, the real trouble lay in the fact that the rate of the entire column was governed by its tail. And what a tail!

Shuffling along with the clumsy baggage carts and scrawny pack animals, a horde of sutlers, vintners, fleshers, bawds, soldiers' wives, and assorted camp followers lagged and straggled with cheerful disregard for every exhortation hurled at them by the wagon master and his sadly overworked confrère, the *hüerenweibel*. Almost invariably, the swarm of hangers-on outnumbered the actual fighting force by anything from three or five to one; and never was there a more striking instance of the tail wagging the dog. "Supply"—in its widest sense—carried the day at the cost of mobility.

Saxon Harold's remarkable forced march from Stamford Bridge to London,

for example—200 miles, over execrable roads, in under 5 days—was only accomplished at the cost of abandoning his baggage and his baggages—and reducing his remnant of troops to such a pitiful state of distress that it was another 6 days before he could venture to move coastward to confront William's fresh and well-rested invasion forces in the Battle of Hastings (14 October 1066).

Gunpowder and Mobility

The introduction of gunpowder gave an inadvertent fillip to mobility as men and steeds began progressively to discard the cumbersome body armor which had proved so unavailing as a protection against the new type of missiles—when, as occasionally happened, they actually hit their target. In consequence of the greater freedom of movement permitted the foot soldier, the pace of the march appreciably accelerated. Whereafter, the horse, having assimilated the folly of frontal charges against troops equipped with firearms, was driven to an elementary development of the flank attack. These were launched at speed and with the employment, wherever possible, of the demoralizing element of surprise.

However, the infantry still fought in solid masses, bludgeoning away at each other like bulls at a gate, with recourse to the minimum of tactical maneuver. Equally, their rate of progression on the line of march still remained at the mercy of a bumbling baggage train and its dead-weight of parasites; creeping over roads that were themselves anything but an encouragement to smooth and rapid transportation.

By the middle of the seventeenth century, the technique of warfare had degenerated into little more than a set of conventions governing something which can only be described as a stylized, set-to-partners, military quadrille. Tied to fixed "magazines" which severely limited the scope of their activities, the armies

of Central Europe were content, for the most part, to deploy themselves circumspectly to a formalized pattern, with the object of disadvantaging and immobilizing their opponent by a "masterly" maneuver which would place him, according to the agreed rules of the game, in a technically "impossible" position. Apart from an occasional ambushade, all attempts to engineer surprise had virtually fallen into disuse. Indeed, such a thing as a full-scale, all-out clash of arms in which decisive victory should be sought, even at small risk, was frowned upon severely. By 1740, Marshal Saxe could pronounce, without arousing derision or reproof, "I am not in favor of giving battle; . . . I am convinced that a very clever general can wage war all his life without having to fight one." Furthermore, Massenbach could write admiringly of Frederick the Great's brother, Prince Henry of Prussia, "More successful than Caesar at Dyrachium, greater than Condé at Rocroi, he, like the immortal Berwick, won his victories without battle."

A concept more calculated to keep a country in a perpetual state of warfare can scarcely be conceived; nor could there be a greater abnegation of the dictum that war, if waged at all, should be prosecuted to bring about a better condition of peace, for it is patent that so long as your adversary retains an army-in-being, so long will he remain a factor with whom to reckon. Moreover, the best way to see to it that he does not retain an army-in-being is to put the one he does possess decisively out of business.

A Change in Technique

Small wonder that such commanders as Tallard, Boufflers, Villars, and Vendôme, blandly anticipant of that pedantic travesty of military doctrine which Massenbach admired so warmly, should have found the dashing heterodoxy of the Duke of Marlborough's stunning and unequivocal

ocal victories as scandalous as it was baffling, for it was based, very largely, on rapidity of movement combined with great flexibility in tactical maneuver.

Enormously advantaged by having perfected a rough-and-ready system of supply which cut him free from the restriction on mobility imposed by fixed "magazines," and by his employment of pace to cover space well ahead of contemporary schedule, "Corporal John," as the saying goes, made rings round his opponents time and time again.

In the real sense of the term, war of movement may be said to have begun from the day the Duke of Marlborough took over supreme command in the Low Countries.

On almost every occasion Marlborough achieved his spectacular results by the employment of a judiciously balanced force of all arms; although for the purpose of engineering a deceptive feint it was his practice to rely on the superior mobility of the horse. Thus, in the passage of Villars' "impregnable" *Non Plus Ultra* lines, in the spring of 1711, the cavalry was utilized to bewilder the French in a feint from which only their own speed of movement, aided by the fall of darkness, enabled them to return in time to embark on the masterly maneuver which was to turn the enemy flank and reduce all Villars' elaborate defenses to the uselessness of the Maginot Line after the German break-through west of Sedan in 1940. Needless to add, a strong, fresh body of infantry, stepping out with a will, was ready to hand when the moment came for the *arme blanche* to seek support. "Held by the nose" by guile (in this instance) and "kicked in the pants" by the speed at which a vigorous attack had been developed at the point of greatest vulnerability, Villars' "impregnable" edifice of defense collapsed like a house of cards.

It was rather a different tale at Warburg, in the blazing July of 1760, when

Prince Ferdinand of Brunswick was brought the news that an isolated French force was positively asking to be snapped up by a stroke in which speed was of the very essence of the contract. The British contingent of the allied army, lying within 10 miles of the Gallic force sunning itself on the banks of the Diemel, was immediately set in motion, under the command of the Marquis of Granby. However, the day was pitilessly hot, the going difficult and, in places, almost impassably marshy; and although none of the heavily burdened infantry fell out, many dropped in their tracks from sheer exhaustion; while the rate of march declined with every painful mile traversed.

There was nothing for it but for Granby to push forward in all haste with the cavalry only, supported by a few "pop-guns" of the flying artillery. Away went the 22 squadrons at a trot, "the field pieces accompanying them at a speed which amazed all beholders." At the head of his own regiment of the Blues rode the noble Marquis himself, his face streaming with sweat and his prominent eyes almost starting from his head with eagerness and excitement.

Arriving panting on the field of battle, the British cavalry paused only long enough to form line before hurling itself headlong at De Broglie's astonished Frenchmen. At its head rode Granby, his tricorn hat long since discarded and his dome-like bald head shining in the sun "like a good deed in a naughty world." Behind him the long ranks of troopers, cheering wildly between Homeric gusts of laughter at the spectacle of so novel an oriflamme of victory, crashed home so purposefully that almost in a breath the French were broken and scattered.

It was no fault of the toiling, overburdened infantry troops that they arrived on the scene when virtually all was over but the shouting. It was simply that they

had been trained and equipped for almost everything but mobility.

Few things can have been more pedestrian than the movements of the British commanders in the American War of Independence; men, be it noted, compelled to rely almost exclusively on the services of infantry. The follow-up after Howe's victory at Long Island, for example, was so dilatory that, owing to the celerity and good work displayed by the 14th Foot Regiment of the Continental Line—recruited almost exclusively from the boat-handy fishermen of Marblehead—Washington was enabled to evacuate his wounded and withdraw his troops, down to the last rearguard, almost unmolested. The fault lay in part with Howe's natural bias toward inaction; but want of a real doctrine of mobility in his troops was equally to blame.

Washington's valiant dash across the Delaware, in the teeth of the most appalling weather, to catch the Hessians napping at Trenton, set a better pace. However, *organized, concerted* essays in mobility were not an outstanding feature of his subsequent operations. Rather, the genius of the Continental forces lay in an individual nimbleness and tactical resource, which proved particularly effective in the type of warfare developed by the nature of the terrain over which they fought; and to which they so adroitly made their bewildered opponents conform, for the British redcoat was still hampered by the clogging impedimenta with which he was hung about, and frequently led into error by the inflexible formalism of the rules he had learned on the battlefields of Europe.

If, as has been contended, the American soldier of the Revolutionary War—in the main almost as lightly burdened as the men of the Boer Commandoes of the South African campaign of 1899-1902—found the weight of his field outfit a serious menace to his mobility, the British redcoat was in

far worse case under his burden of something like 125 pounds. It may fairly be said that the experiences undergone throughout the War of Independence occasioned the first real attempts to facilitate mobility by lightening the burden carried by the individual foot-slogger.

A Major Problem

The man in the ranks fights a battle only occasionally; but he is hungry, with great punctuality, three times a day. The question of his alimentation and his obligation to carry a heavy load of it on his person has, therefore, always constituted a major factor in the problem of weight reduction as a means of ensuring mobility. The old, cumbersome methods of ensuring subsistence—the burdensome company cauldrons, the lumbering bread-wagons, the crawling fourgons of the commissaries and sutlers, and the slow-pacing flocks of sheep and herds of beef-on-the-hoof—could only be improved upon if cooking utensils could be made less heavy and the food itself put up in more concentrated form. To take the weight off his feet in this direction was as essential as to lighten the burden of his weapons.

Finding a Solution

To the solution of this highly important problem many outstanding military leaders have diligently addressed themselves. So early as the mid-fourteenth century, for instance, Froissart speaks of Charles VI of France preparing large stocks of "yolks of eggs in powder and rammed in barrels," as a preliminary to an attempted invasion of England. Just over four centuries later, one of the first things that Wellington did on landing at Mondego Bay in Portugal, in 1808, was to scrap all the unwieldy iron mess-kettles then in issue, substituting much lighter vessels in their stead. "It is no matter if they don't last," he laid it down, "so long as they can be easily handled. If they wear out, they can be replaced."

Biscuit had, of course, long been in use in lieu of bread. As early as the Thirty Years' War, Wallenstein had consistently accompanied his field armies with a reserve supply, for issue in the event of a shortage of freshly baked loaves; while Napoleon affirmed that "Biscuit makes war possible." Furthermore, it was Napoleon who offered a handsome reward for any man who could devise a method of preserving meat, to serve as field rations. The prize was won by Nicholas Appert, whose glass containers anticipated the tinned meat of later days. The less fragile canning process was first evolved by a London firm of caterers, Donkin and Hall, of Bermondsey; who, in 1813, supplied a small quantity of meat in canisters to the Navy. Labeled *boeuf bouilli*, with rough-tongued sailors impatient of truckling to fancy foreign accents, it soon came to be given that name of "bully" beef by which it is now known throughout the world. After a not particularly encouraging start, following a further and more searching try-out with certain arctic expeditions, it found general adoption throughout the Navy. After all, it was a slight improvement on maggots "salt-horse"! The military made unenthusiastic acquaintance with it during the Kaffir War of 1851-52; and reports on it from the Crimea were singularly lacking in warmth. However, improvements in canning did something to enhance its tempered popularity with the Ashanti campaign of 1873; whereafter it took its unhonored place as a staple of field military rations.

Connecticut gave the world—and the fighting man—the boon of condensed milk in 1848; and John William de Forest, novelist and captain in the 12th Connecticut Volunteers, has left a record of his warm appreciation of a gift of canned food and condensed milk from the Sanitary Commission, which was donated to him at Georgetown Heights in July 1864.

A Related Problem

The burden of the soldier's actual alim-entation—as well as the cumbrous nature of its demand on wheeled transport—had certainly been lightened; if the vessels involved in its consumption could undergo a similar reduction in weight, the individual's mobility would be proportionately increased. That stage was in sight when Napoleon III. perceived the possibilities involved in utilizing aluminum as the metal for water bottles, mess utensils, and the like. At first its outrageous cost—\$16 an ounce—threatened to prohibit its adoption for military needs. However, when, in 1886, an American inventor succeeded in freeing aluminum from its ore by electrical process, the way was paved for the manufacture of a score of warlike necessities in light-weight metal—and for the ultimate 80 percent aluminum airplane of the United States Air Force.

It was another American, Herman Haupt, who, in the War of Secession, demonstrated what astounding use could be made of the railway as an obedient servant of military mobility. He proved that the "iron horse" could spare the soldier the fatigue of long approach marches and decant him and his equipment on the very verge of the combat zone. Moreover, such tasks were performed with remarkable punctuality and dispatch.

It was a lesson not lost on Europe, as the opening phase of the Franco-German conflict of 1870-71 clearly demonstrated. That the use of railways for the swift deployment of troops demanded staff planning of the highest level was equally to be apprehended. Moltke, having "pressed the button" to set his plans in motion, could sit back and enjoy a novel, confident that everything would go forward without hitch, while on the Gallic side of the frontier, mobilization immediately evoked a state of things indistinguishable from the chaotic. Colonels in search of

their regiments; a mere 38 bakers sent forward to railhead to cope with a force of 120,000 men; reservists journeying for days to report to a unit eventually run to earth in their own home town—the confusion was such as very cogently to suggest that the organization of mobility demanded a technique which could only be acquired as the outcome of long and arduous training.

It was also brought sharply home to all concerned that it is useless to deliver a soldier at a railhead on the edge of the battle zone and then leave him so loaded up with personal lumber that mobility in action would be a sheer physical impossibility.

That is a problem which still confronts the overburdened glider-borne or motorized infantryman of today; whose training, incidentally, should make a point of ensuring that he does not encourage himself to become truck bound, for in the very nature of things, he is a man from whom is demanded the very highest degree of mobility. No longer is there any fleet-footed cavalry to feint and operate ahead of him. Moreover, as often as not, instead of the armor punching a hole for him to go through, he will find the boot on the other leg—as at El Alamein, where it was the infantry's responsibility to nurse the armored fighting vehicles into action. Yet "factory-war" has weighed him down with too much lumber, *in most instances far too substantially made*. Moreover, it is no answer to the question to distribute the load over two or more men—making specialists, in short. That is to get too many targets on the ground; for too much thickening-up merely increases the opportunity for an enemy bullet to find a billet.

Potential Solutions

Light, rain-resisting, windproof clothing, not meant to last out one war and carry on into the next; canteens and mess

kits of material with as little weight to it as Bakelite; equipment not of heavy leather or webbing, but of something in the nature of the plastic used for the manufacture of a lightweight mackintosh—these are not beyond the bounds of practicability. Footgear is a problem not so easy of solution. However, something might be done in the way of a crêpe rubber outer sole, with a thin inner sole of leather and light uppers—not designed for longevity—worn in conjunction with a spat-gaiter of the self-same plastic. Even the rifle and other personal weapons might have skeleton stocks, such as those fabricated for the machine-pistol and the Sten. For presenting arms and for ceremonial purposes, a dozen or so of the older variety could repose in stately dignity at battalion headquarters!

Thereafter, it is almost certain that science would be able to evolve a battle-action-only ration in such concentrated form that its addition to the soldier's lightened burden would hardly be noticeable. If only something could be done about the appalling nightmare of the "noddle-bucket," "tin-hat," or "battle-bowler," the soldier might be able to lift up his head as well as his feet.

War, with its ever increasing catalogue of assorted ironmongery, is putting on weight disgracefully. Yet the war to which the Western world is most likely to find itself committed will be—on present showing—a conflict fought out in the main by the men of the infantry. It well may be that the "race is not always to the swift, nor the battle to the strong," but it is a practical certainty that it is not, nor ever can be, to the slow, the hampered, and the debilitated.

"Battles are as much won by feet," said Wellington, "as they are by arms." But they are not won by feet weighed down by an intolerable burden.

Water--An Offensive Weapon

Translated and digested by the MILITARY REVIEW from an article by W. C. Brou in "L'Armée-La Nation" (Belgium) September 1952.

THERE was a time when water, put to use in the form of inundations, was regarded as an auxiliary defense element, preventing or rendering more difficult the attack of a military objective. Up to the end of the eighteenth century, military tactics were based on siege warfare, and, in this, water played a defensive role. However, it is interesting to note that in several cases, both in antiquity and in modern times, water has been employed by attacking forces in order to block the escape of the defending force, to prevent supplies or reinforcements from reaching the defending force, or to inundate the defense positions to expedite the surrender of the defending force.

This latter, offensive role of the "water weapon" was employed on a much larger scale during the course of the last war, and its use by the allies in, it is true, but a few cases brought about veritable catastrophes on the side of the enemy, superior in effects to the devastating attacks of air armadas.

Writers have gone to great lengths in describing the effects of atomic fission, and comparing the amount of energy liberated by an atom bomb with that liberated by an ordinary bomb of equal weight. However, as regards this matter, there is another comparison that could be made: that between the potential energy accumulated above a great dam and which is suddenly released by the destruction of this dam, and the energy needed for effecting the destruction of the dam itself.

Wartime Examples

The destruction of the dam at Dnieprostoi (USSR) in 1941 by the Soviets, liberating several billion cubic feet of

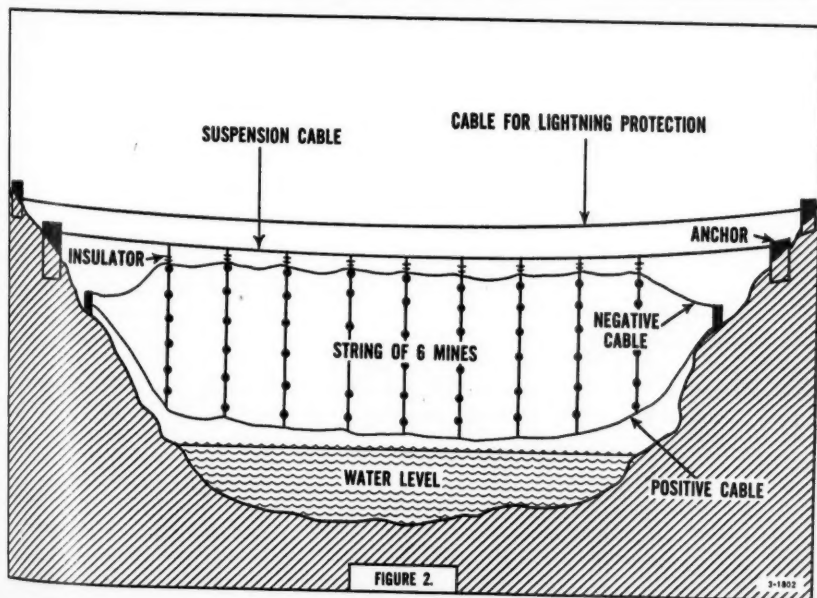
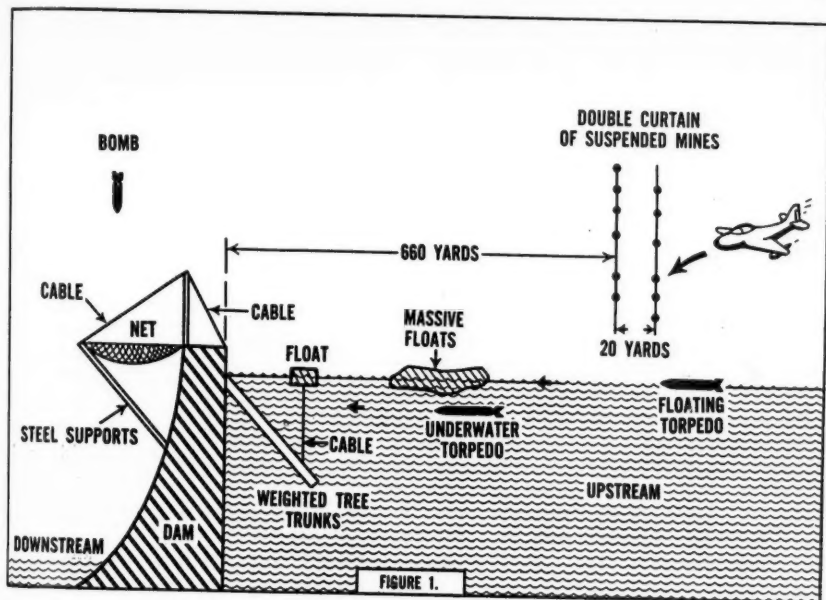
water and sweeping away all the bridges downstream for hundreds of miles, still pertained to the defense, for its purpose was to slow the German advance. On the other hand, the bombardment and destruction of the Möhne Dam (across a tributary of the Ruhr) and Eder Dam (across the Eder, a tributary of the Weser) pertained to the offense, for the objective was to paralyze the great German war industry.

These two dams (the largest in Germany) produced two-thirds of the electricity generated by water power in the area. The Germans had carefully protected them, by means of metallic nets, against torpedoes dropped by planes, and had surrounded them with powerful anti-aircraft weapons.

The allies made minute preparations for the destruction of the dams: obtained aerial photographs; examined maps, photos, and scale models of the dams; conducted training courses; and constructed special aerial torpedoes.

The attacks were launched during the night of 16-17 May 1943. Eight of the bombers sent out were shot down, but the others reached their objective. A news dispatch of 17 May 1943 described the raids as follows:

The British Air Ministry reports that RAF mine-carrying Lancasters early this morning bombed three dams in Western Germany—the Möhne in the upper Ruhr Valley, the Eder on the Eder River, and the smaller Sorpe reservoir dam. Water pouring over the broken lips of the Möhne and Eder Dams flooded the Ruhr, Eder, and Weser valleys, wrecked bridges and power stations and inundated Kassel and other manufacturing cities. Swiss dispatches say 4,000 are dead and 120,000 homeless, and railroad traffic is crippled. Berlin admits "heavy losses." . . . The bombers . . . dropped . . . 1,500-pound mines from an altitude of less than 100 feet. Eight planes were lost.



The Möhne Dam is 122 feet high and holds back 134,000,000 tons of water, while the 134-foot Eder Dam holds back 202,000,000 tons. Besides providing power, they control the levels of the Ruhr, Weser, and Fulda Rivers and their canal systems.

Another example of the offensive employment of an inundation was the breaching of the seawall at Westkapelle on the Dutch island of Welcheren on 3 October 1944. This German supporting point, north of the Scheldt, was a constant threat to Antwerp. *Lancasters* attacked the seawall with bombs and made a wide opening through which the sea inundated the low portions of the island, partitioning off the German defenses. The allies reduced these, one by one, by the use of amphibious equipment, making use of the dikes or routes which were above the water level.

Protective Measures

In preparing campaigns, therefore, accounts must be taken of the threat of inundations, both in the zone of operations and in the rear of the front.

In addition to protecting dams with adequate fighter protection and anti-aircraft weapons, one may take steps to protect the dam locally, taking the following considerations into account:

1. A bomb will produce but limited damage if it fell on the top of the dam. Whatever damage was produced would not affect the strength of the dam or would not produce openings through which the water could escape. Therefore, it is useless to protect the top of a dam unless for the purpose of protecting the route which crosses it.

2. A large crater in the upstream or downstream side of the wall of the dam, and in the upper third of it, affects the stability of the dam and may result in the displacement of this upper third under the pressure of the water, thus giving rise to a large breach.

Among the effective arrangements for

protecting dams, the following may be noted:

1. Protection by barrage balloons.
2. Protection by means of nets on the downstream face of the dam (see Figure 1). These nets are hung horizontally between the crest of the dam and the top of metallic posts fastened in the downstream face of the dam. This arrangement was employed by the Germans at the Möhne Dam after it had been repaired.
3. Protection by means of grills constructed of tree trunks or timbers attached obliquely on the upstream side of the dam (see Figure 1). One end of each timber is attached to the face of the dam at the point of the water level, and the weighted lower extremity is held up by a float. This grill would either stop an underwater torpedo or deflect it toward the surface.
4. Protection by means of antitorpedo nets arranged vertically on the upstream side of the dam, held up by floats and camouflaged by branches of trees. This arrangement was also employed by the Germans at the Möhne Dam after it had been repaired.
5. Protection by means of massive floats on the upstream side of the dam for the purpose of causing the premature explosion of surface torpedoes.
6. Protection by means of an aerial mine barrage or obstacle (see Figure 2). Although the suspended aerial mine barrage cannot be regarded as completely perfected as yet, it would pay us to examine it, and visualize how it could be employed in the future. A similar arrangement was employed at the Vermunt Dam, in Austria, during the last war. Upstream protection of this dam was achieved by a double curtain of suspended mines (see Figures 1 and 2) whose construction was as follows:
The curtain farthest upstream, 680 yards from the foot of the dam, was 780 yards wide and had 27 vertical strings of

6 mines each. The other curtain, 660 yards from the foot of the dam, was 1,000 yards wide and had 35 vertical strings of 6 mines each. This curtain was slightly higher than the other one.

In the case of the Vermont Dam, the distances of 660 and 680 yards were determined by the diving possibilities of a plane, which were rather reduced by the close proximity of the bordering mountain tops. A cable for protection against lightning ran parallel to each curtain of mines. The mines were connected both mechanically and electrically. Two electric cables, one positive and the other negative, connected the strings of mines together, and were attached to an electric generator. Contact with the mines or a violent shock would cause the mines to explode.

These few examples show that during the course of the last war the ingenuity

of designers and engineers was put to the test in finding the best possible protection for large dams. The catastrophes of the Möhne Dam and the Eder Dam should be a lesson for the future.

A Future Problem

In the case of our small country, in particular, our engineers may some day be faced with the problem of the protection of our Gileppe, Robertville, Butchenbach, and Eupen Dams. Years have been required for their construction. Eventual reconstruction would require very considerable time, enormous effort, and a great amount of money. To be sure, these dams are in a class below those previously mentioned, but it is none the less true that the water held by them is of vital importance to the industrial regions whose prosperity they ensure. In wartime, their protection would be of the utmost importance.

Training the Citizen Army

Digested by the MILITARY REVIEW from an article in
"The (London) Times" (Great Britain) 21 October 1952.

TRAINING a citizen army has always required ingenuity. It demands on the part of those responsible a full understanding not only of military needs but of their civilian context. Thus a Regular squadron or company commander drawing up his training program has virtually to consider two constants: the training to be done and the number of hours in the week. The Territorial has to take into account much more than that. In a city he has to know such things as normal office routine and the times of the last buses to the suburbs; in the country, the much more irregular working hours of the farm laborer. In both cases, there are all sorts of social demands on a civilian which cannot be ignored. A unit which tries to

ride rough shod over them will assuredly collapse.

These factors apply as much today as before the war. However, the objects of training have vastly altered. In the old days, the Territorial soldier usually received his only training in the Territorial Army. Thus, it was the function of the latter to inculcate the groundings of military knowledge in the recruit. He had to be taught how to salute, how to lay out his kit, even how to roll his puttees—from the ankles up in the case of the infantry, from the knee down in the case of the mounted arms, so that the puttee tapes would not come undone through friction on the saddle.

Today, with few exceptions, men com-

ing to the ranks should, theoretically, be fully trained soldiers. Certainly those coming with no training at all are now a handful. The Territorial unit's concerns are to brush up the memory of the Z men*; to keep the knowledge of the National Service (the draft) men fresh and up to date; and in many cases to retrain



A self-propelled gun crew of the Territorial Army training during summer camp.

or upgrade them so that they can acquire other trades or become noncommissioned officers. All this demands less time spent on what is usually described as "general military training," and more time spent in technical and collective training.

In most ways, the present-day Territorial Army is far better fitted out to do its job than it was before the war. The contrast is strongest in equipment. In the old days, both arms and transport

were sadly lacking even in the Regular Army, and the lack was a thousand times worse in the Territorial Army. Every kind of improvisation had to be resorted to. Old motors were bought and "sectionalized" with hacksaws in the backyard; no scrapheap or junk merchant was safe from the roving eye of the keen Territorial instructor; whole units used to go to camp equipped with their members' private cars, whose springs and differentials would never be quite the same after the training exercises.

The Situation Today

Today all that is changed. Within the drill hall there is an adequate supply of radio training sets, guns for demonstration purposes, and sectionalized engines. At camp, pool weapons and transport are generally sufficient in numbers, if sometimes obsolescent and in bad repair.

Some arms have special difficulties. The parachutists have to do most of their jumping from balloons, and it is only recently, and because of the friendly and voluntary help of the United States Air Force, that proper collective training, including jumping by whole units, has been possible. Some of the pool tanks are in a bad state of repair, and armored units which come into the training areas late in the year, taking over tanks that have been flogged throughout the summer by half a dozen previous units, are apt to suffer in consequences. However, the majority have little to complain of, and there are even instances of over supply where requirements have been met in excess of what a unit can possibly handle.

Training Grounds

In addition, there have been great improvements made in the training grounds. In some areas it is possible to carry out battle practice with live ammunition, and in others it is possible to allow field firing for tanks and artillery. Moreover,

* Regular Army men who have completed their service in the Regular Army and have automatically been transferred to the Regular Army Reserve and are called up once a year for refresher training with the Territorial Army. This training takes place under the supervision of the Regular Army. They do not do the all-year-round training that is done by members of the Territorial Army.—The Editor.

training areas have been constructed close to some cities to allow week-end training. However, all these areas have their drawbacks. The battle areas are mostly too small for formation training, and the week-end areas too small for regimental or, in some cases, squadron or company training.

The ever increasing range of modern guns is pushing up the required length of ranges. To overcome these handicaps, the possibility of training some Territorial units in Germany is suggested by the paratroop drops that took place there in the summer. However, when all is said and done, the modern Territorial Army is immeasurably better off for training areas than were its predecessors.

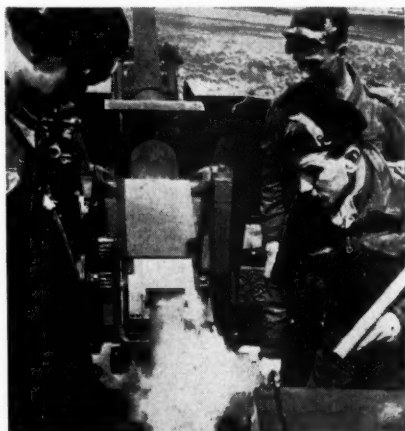
The Instructor Problem

The provision of instructors still presents difficulties. The Regular Army has to find the permanent staff instructors, and with its immense overseas commitments and the unevenness of its postwar recruiting history, there is some cause for anxiety whether the instructors will always be forthcoming in sufficient numbers, particularly for scattered units in rural areas. So far, however, the pinch has been evaded. Good instructors are, of course, to be found among the older Territorial Army volunteers. Z men, although well trained, are usually too rusty to instruct others; and the National Service recruits are seldom, if ever, above the rank of corporal, although some good instructors have been found among them since the period of National Service was increased from 18 months to 2 years.

Complexity of Weapons

However, although Territorial training has become easier in some respects, it has become harder in others. This is because of the increasing complexity of modern weapons and vehicles. Before the war, for instance, with perhaps one ex-

ception, no Territorial armored unit was equipped with anything fiercer than an armored car. Even that, although it could be comfortably stabled in a city back street, could cause worries. There was the Lanchester belonging to a famous yeomanry regiment whose brakes failed when it was approaching the historic Amersham Town Hall. Antiquarians and pacifists united in protest. Moreover,



Gunners of a Territorial artillery unit firing a 25-pdr during a practice shoot.

there was the unfortunate occasion when an armored car company in London whose garage was being done up parked its sole 5-ton armored car in a local commercial garage. Somebody placed it in the lift for consignment to the basement where it remained until counterweights could be obtained.

These, however, were casual annoyances compared with the difficulties of keeping a modern tank in an urban area. Merely starting it up is apt to break the neighbors' windows, and driving instruction in a built-up area is out of the question; so that, generally speaking, tanks have to be kept in the week-end training area.

Additional Problems

The infantry and other arms are mostly faced with similar problems. There is little useful training that a rifleman can carry out nowadays on his one night in the drill hall. The complexity of weapons, up to and including 17-pounder antitank guns, necessitates his training out in the



Paratroopers of a Territorial Army unit jumping during a recent training exercise.

open. All these factors have combined to a particular change-over in training technique which is to some extent radical and may necessitate administrative alterations. If tanks are to be driven, or infantry trained in field work as opposed to "close order drill," then evening training in the drill hall is not a suitable method. More and more training must be done in the open during the week end. It is a question of longer, if less frequent, "drill attendances." This does not apply so much to technical training. The best place for the radio school, for instance, is still the indoor headquarters, although

headquarters with a multiplicity of small rooms, instead of the traditional drafty emptinesses, are what is wanted to fill the contemporary needs. Week-end training, of course, is not a complete innovation. Most units before the war attended an Easter camp when they shot off their statutory annual firing practices. In those days, the parent Regular unit was often stationed at home and, having sent most of its own men on leave, would cater for its Territorials. The habit of the week-end scheme was certainly spreading in the late 1930's, probably because of increasing mechanization. Now it looks as if it is becoming the rule rather than the exception, and its social and organizational implications certainly need to be looked at carefully.

One other aspect of training which did not bother Territorials before the war must be mentioned, and that is the training of formation headquarters. Before the war, apart from one or two personal staff officers, Territorial divisional and brigade commanders had no operational staff. Now this is all changed. Unfortunately, because of the smallness of the training areas, headquarters staffs have little opportunity to practice large-scale movements of troops, but they can, and do, exercise themselves by means of map and terrain exercises and indoor and outdoor radio schemes.

State of Readiness

Enough has now been said to indicate the lines on which modern Territorial Army training is proceeding, its aims and difficulties, and how they differ from those of former years. The question that remains to be answered is to what extent they meet the need of providing a Reserve Army ready to take the field at little notice if the small Regular forces overseas are attacked. There is, it is safe to say, little comparison between the state of readiness of prewar and post-

war Territorial Armies. Not only was that in 1939 understrength and under-equipped to an extent that defeated the most devoted efforts of its members to make it battleworthy, but it was diluted, flooded out, and in some cases permanently dislocated in the attempt to duplicate it on the eve of action. Today it is safe to say that some crack units are at a state of training which would require less than a month's shake-down to bring them up to the standard of a Normandy assault unit. They are, of course, the exceptions, and it is impossible to generalize. The case of a unit which has trained with its full war complement of Z reservists is evidently quite different from one that has not. Then the pace of a division is to some extent that of its slowest unit, or its battle troops may be impeded because there is some small but glaring gap in the technical services that maintain them. He would be a rash man who would estimate an hour and a day when the Territorial divisions would be fully battleworthy, and in any case it is a good thing to keep the other side guessing.

"Battleworthiness" is, of course, a relative state. Some concern was caused quite recently by Lord Montgomery when he stated in a speech at Chatham House that 2 weeks' annual training was not sufficient for the training of efficient reserves. He urged that the period should be increased to a month.

He was referring in particular to the need to train divisions as formations in

the field. A call-up of the whole Territorial Army for so long a period would certainly place such stresses on industry, and on the all-important good will of wives and families, not to speak of the men themselves, as would threaten the collapse of the whole Territorial system. How then is this formation training to be achieved? For it is clear that the weakness of the reserve training lies not so much in quantity nor even quality but in balance and articulation. There are plenty of relatively highly trained reservists in the country; but the larger the body in which they are grouped the less ready for action it is. If more could be done to fill the communication and service branches with efficient technicians, without dislocating industry in peace or war, a lot would have been done to eliminate weak points. That is why recruitment for the Army Emergency Reserve is so important. However, that still does not get over the difficulty of exercising the staffs in handling divisions on the ground, which cannot be done easily, either in 2 weeks or on the home training areas. Whether the calling up of divisions in rotation, perhaps for a month's training in Germany, is feasible should certainly be studied carefully. If this were done some of the present Territorial divisions would certainly make the Regular divisions look to their laurels, since the Z reservists in the Territorial Army rank and file are generally more experienced than the National Service men, who provide so high a proportion of the Regular units.

I cannot stress too strongly the fact that democracies must be defended by citizen-soldiers. We do not provoke wars, and cannot afford large standing forces. It is the enemy who determines when and where we must fight. And such a condition almost compels us to be prepared as were our early settlers to meet a sudden attack.

General J. Lawton Collins

Security Against Sabotage

Digested by the MILITARY REVIEW from an article by
H. N. Lloyd in "Canadian Aviation" January 1952.

THERE are two closely related problems in connection with security against sabotage. One is the problem of atomic attack and the other is the problem of espionage.

The possible atom bomb attack by an enemy against industrial facilities, I shall cover by a quotation from the United States National Security Resources Board:

There is no known military defense against the atomic bomb itself except space. The constantly increasing range of aircraft, together with the enormous destructive capacity of atomic weapons, makes it reasonable to assume that within the foreseeable future no area in Canada will be immune from possible attack because of its location alone. This assumption, coupled with the knowledge that the destruction or immobilization of a nation's vital industry will destroy its capacity to defend itself, makes it reasonable to assume that highly concentrated areas of vital industry and population will be the most attractive targets. Sabotage and other methods of destruction would probably be attempted in an effort to prevent effective industrial mobilization for retaliation. Atomic bombs could be delivered simultaneously by plane against strategic industrial targets and by ship against our vulnerable ports.

In connection with the problem of espionage, let me cite the case of the British atomic scientist, Dr. Klaus Fuchs, and the trial in New York in which the self-confessed spy, Harry Gold, highlighted the seriousness of this type of threat to the security of any country.

Types of Information Sought

Some of the primary targets for espionage revealed in the testimony before the court in the New York trial are any technical information on such processes as the manufacture of Buna-S synthetic rubber and the manufacture of high-octane gasoline, turbine type aircraft engines, and even information on the first jeep models turned for the military forces.

These are the subjects on which foreign agents would like information:

1. New developments in science, especially of military weapons.
2. Details of our atomic research and development.
3. Our advances in aviation, particularly military aircraft.
4. Valuable details on the industrial capacity of Canada.
5. Detailed biographical information concerning the activities and thoughts of political, military, and industrial leaders of Canada.
6. Detailed information on the attitudes of certain foreign language groups in this country which might possibly be soft spots for possible penetration.

Wartime Sabotage

During World War II this country was extremely fortunate in its relative lack of sabotage, but other nations were not so fortunate. In France, sabotage was a major weapon and an important contributing factor in the initial downfall of that country. The closest we came to the real thing in this period was in the landing on the east coast, off Long Island and off the Florida beaches, of the two groups of German saboteurs from Nazi submarines. They all lived at one time in the United States, and they all came well prepared with excellently forged identification papers, plenty of American money, and all types of instruments for sabotage. Among the examples of their master craftsmanship for death and destruction were dozens of incendiaries that appeared to be ordinary fountain pens and pencils and time bombs that looked like lumps of coal. Fortunately, through good vigilance, this plot was nipped in the bud.

Four Methods

There are four ways in which sabotage shows itself:—labor sabotage, arson sabotage, mechanical sabotage, and bombs and explosives.

Labor sabotage is a form of psychological warfare and includes anything which undermines public morale and public opinion. Every means possible is used to foment dissension. The chief means are labor strikes and labor slowdowns to cut down on production. This is an extremely difficult field to handle because very often legitimate labor management issues are involved.

Arson sabotage brings to light some of the most ingenious schemes. Even in ordinary times we have all read about some of the involved arson insurance frauds that are often committed. Present-day saboteurs use many methods, such as delayed-action incendiaries in the shape of pens, pencils, and cigar boxes.

Mechanical sabotage refers to any purely physical damage and includes everything from impurifying water and throwing water in a crankcase, to attempting to undermine the Brooklyn Bridge.

Finally, there is the fourth method of sabotage—bombs and explosives. These are of a very wide variety. Delayed action is one means greatly used and it may appear in some such forms as ordinary looking lumps of coal. This is an exceedingly dangerous means of sabotage which requires expert counteraction.

Meeting the Threat

What reasonable steps can we take to meet the threat posed by a potential saboteur? Because no two plants are alike, each plant must develop the details of its own protective measures and determine its own specific requirements.

The first measure recommended is that each company set up a central control center or central clearing house for all measures concerned with security against sabo-

tage. The company official selected to supervise and direct this activity should be an executive—preferably one with some experience in the field of law enforcement, safety, plant protection, and security. As the plant co-ordinator in this field, he must have the full support of top management. He must have the authority commensurate with the responsibility. If a crisis should develop, he is the one who is either the hero or the bum, depending on how he handles the emergency.

The plant official charged with this responsibility should maintain centralized files on all information covering defense plants, plant protection and security measures, and on any subversive activities in the plant. He would be responsible for disseminating all the necessary information on this subject through bulletin forms, through company papers and magazines, and through trade publications. It should be his duty to bring to the attention of the employees, supervisors, and executives all matters pertaining to protection and security. He should maintain close liaison and co-operative contact with the representatives of the Army, Navy, and Air Force, with the Royal Canadian Military Police, and with the various law enforcement agencies.

Personnel Measures

As far as measures dealing with personnel are concerned, the most careful pre-screening of applicants for employment should be inaugurated. This is particularly true of personnel who are to work in vital areas. Wherever possible, only trusted old-time employees should be placed on vital national defense work. Assignment of employees should not be made haphazardly. A definite attempt should be made, through checks with former employers and references, to obtain as much background information as possible concerning applicants for employment. Fortunately, the sources of information concerning subversive organizations and

groups are much more extensive today than they were a few years ago.

Guards, watchmen, patrolmen, janitors, and charwomen should be checked closely at all times because they usually have wide access in the plant. It is often said that a janitor or sweeper will hear the news first in any plant. The movement of employees should be restricted in their own particular work areas. Vital areas in the plant should have their own separate inner controls. Effective employee identification is extremely important. Tamperproof identification badges and cards bearing the photograph of the employee should be adopted. Guards, patrolmen, and watchmen should be well trained in effective methods of checking badges carefully, so that only persons responsible for the free flow of the production line may be permitted to enter and leave the plant.

There should be a rigid check-in and check-out system. All entrances should be vigilantly guarded, so that unauthorized persons will be kept out. It is recommended that the outer perimeter of the plant proper be checked periodically by prowlers. The schedule for this check should always be varied and the direction of the check frequently reversed so that an outsider cannot time the movements of the patrol. All packages, bundles, and lunch boxes should be examined carefully, and frequently, and thorough spot checks should be made.

Outside contractors and subcontractors should be held responsible for the investigation of all their employees who have access to the plant. Separate identification should be used for outside contractors and subcontractors which should indicate the area to which they have been assigned. Wherever possible, a separate gate should be used for checking them in and out.

Plant Visitors

Visitors to the plant also should be strictly controlled. They should always be

registered, and the log should be complete, showing the date, time in, name, company represented, person to see, purpose of visit, and time out. Visiting should be restricted as much as possible and no one should be admitted to a plant except for legitimate and necessary reasons. Alien visitors create a special problem. For aliens visiting a plant there should be a special clearance from top management, and the alien should be escorted at all times while in the plant. Photographers should be barred from the plant, unless the practice is authorized by top management as essential. Truck entrances should be separate, and all trucks moving in and out should be examined carefully and properly registered. Parking lots should be outside of production areas and the number of entrances should be limited.

Physical Security

Good physical security is extremely important. A well-fenced, well-lighted, and well-screened plant makes the work of a saboteur much more difficult. Vital points such as communication systems, alarms, powerhouses, and water, electrical, and gas facilities should be given special protection. A fence is only a temporary barrier, but it is an important one. If it is well lighted and well patrolled, it serves not only as a physical barrier but as a real psychological barrier to the enemy on the outside. Lighting should be designed so that the patrol is in darkness where the area is lighted. Effective lighting and alarm systems to a certain extent decrease the need for manpower.

All plants should have effective communication systems linking all vital areas and control centers. Good plant housekeeping to eliminate fire hazards is a must. Safe repositories should be provided for all important documents, blueprints, and valuable information, with keys and combinations issued only to a limited number of trusted employees. Destruction of impor-

tant papers should be accomplished by burning or shredding. Important mail should always be registered and no classified information should ever appear in personal correspondence or be relayed over the telephone.

The Employees' Role

The part played by employees in preventing sabotage is an extremely important one. They should be told frankly that they may be inconvenienced now by rules and regulations which may save their lives later. They all have a vital role to play. They should be kept informed about any special precautions that must be observed and about the importance of vigilance in connection with the following:

1. Detection of trespassers.
2. Observance of unusual or suspicious conditions.

3. Damage to tools or equipment.

4. Vulnerable spots in their own work areas that might result in damage to property or injury to personnel.

Employees must realize the necessity of reporting to their immediate supervisor this kind of information. It should be emphasized that they must not try to play the role of detective. This is the work of experienced agencies.

The Government has issued the following directive to all citizens:

1. Be alert. A watchful citizen can save many Canadian lives.
2. Report only facts. Avoid reporting malicious gossip or idle rumors.

If employees and management work together, they will do much to protect our country and industries against potential enemies.

NEXT MONTH

The next issue of the *MILITARY REVIEW* will feature the article "Commonwealth Versus United States Field Artillery," by Lieutenant Colonel Ralph Wright, an instructor at the Command and General Staff College. Colonel Wright points out that there are no major differences in the organization and employment of elements of the Commonwealth and United States field artilleries. Each system has been tailored to fit into the over-all organization of the army which it serves.

"Moscow, 1812 and 1941: A Comparison," from *The Journal of the Royal United Service Institution* (Great Britain), will be included in the "Foreign Military Digests" section of the magazine. This article compares Napoleon's and Hitler's invasions of Russia. It discusses their timetables, their military aims, their political aims, and the ultimate end of their Russian ventures.

BOOKS OF INTEREST TO THE MILITARY READER

BRASSEY'S ANNUAL, 1952. The Armed Forces Year-Book. Edited by Rear Admiral H. G. Thursfield. 430 Pages. The Macmillan Company, New York. \$9.50.

By MAJ GREY DRESSER, *Armor*

Brassey's Annual, now in its sixty-third year of publication, deals, in detail, with articles about the British armed forces, written by qualified persons. The *Annual* contains five sections: a general section, a navy section, an army section, an air force section, and a reference section.

The general section deals with the higher direction of British national defense and with subjects related to all three of the British armed services. One such article is "The Near and Middle East in Relation to Western Defence" by Colonel E. H. Wyndham. This essay considers the strategic importance of the Near and Middle East to the security of the Balkans. Colonel Wyndham treats these three areas from the point of view of the defense problem which has brought NATO into existence.

An interesting article appearing in the navy section is "The Reserve Fleet Today" by Captain G. R. Waymouth. In this article, Captain Waymouth is concerned with ships in reserve: those required to be ready for sea at short notice, and those on more extended notice. The problems of berthing, preserving, maintaining, and reconditioning the many reserve ships are of prime importance, as aptly explained by the author.

"The Army As Seen From Parliament" by Ian Harvey, Member of Parliament,

which appears in the army section, should be of great interest to military men. Mr. Harvey attempts to explain why Parliament must consider national defense against an economic background, therefore, they must ensure that money devoted to the army must be well spent.

Among the several interesting articles appearing in the air force section is "Aircraft Development" by Group Captain G. W. Williamson. The author deals with the past year's development of military aircraft in Great Britain and the United States, not only from the point of view of the advances made in jet propulsion, speed, design, and size, but with a comparison of the advances made by the Soviets.

The volume concludes with the reference section and the usual historical data.

VALLEY FORGE. By Alfred Hoyt Bill. 259 Pages. Harper & Brothers, New York. \$3.50.

By IVAN J. BIRRER, *Ph.D.*

The book's preface commences with this sentence: "The purpose of this book is not so much to tell once more the story of Valley Forge as to elucidate the sequence of military events of which it was the central phase."

The reader is given a detailed description of these military events, both American and English, and furnished an explanation of their significance. The result is that profound admiration for the strictly military accomplishments of the Valley Forge era supplements the usual admiration for the personal sacrifices made by Washington's army.

CONQUEST BY TERROR. By Leland Stowe. 300 Pages. Random House, New York. \$3.50.

By CAPT WILLIAM H. BEAUCHAMP, *CE*

A conviction that the preservation of our own freedoms depends on a detailed knowledge of the Stalinist conquest and reorientation of the Eastern European nations behind the Iron Curtain prompted Mr. Stowe to write this book. The evidence of the success already achieved by the Soviets in those nations is very well presented but the author is not himself overwhelmed by this evidence and tempers his presentation by pointing out many cracks in the Iron Curtain and provides constructive suggestions as to how these cracks can be filled by the people of the free world.

The bulk of the volume is devoted to studies of such institutions as the armed forces built up in the satellite nations and secret police organizations. Mr. Stowe provides the reader with tabulations of all personnel mobilized in these forces together with listings of all the women, youth, sport, and volunteer militia group organizations within those nations. These latter groups all receive some measure of military training. A study of the new situations in the courts, agriculture, industry, and religious units follows, as do chapters on the terrorizing of the populace, slave labor, and the cultural conquest.

There are many cracks in the Iron Curtain and the author discusses in his closing chapters the industrial weaknesses, the insecurity felt by officialdom in the police states, atomic weakness, petroleum and food shortages, the rearming of the West brought about by the Korean conflict, and the possible future threat posed by a vigorous, warlike Red China, in the event she turns against the Soviet Union. These cracks can be widened by constructive action on the part of the Western nations and Mr. Stowe feels that the Voice of America, Radio Free Europe,

and other activities of the Committee for a Free Europe have made an excellent start. However, the author feels that much greater interest on a broad basis in such programs is necessary if we expect to win in our struggle against the Kremlin.

THE WAR OF THE REVOLUTION. By Christopher Ward. Two Volumes. 989 Pages. The Macmillan Company, New York. \$15.00 (the set).

By LT COL JACK F. WILHM, *Armor*

As the title indicates, this work deals with the many battles and skirmishes fought as a result of the American Revolution, rather than being a history of the Revolution itself. After briefly considering the background necessary to set the scene for the opening battle, Volume 1 launches into a detailed story of the siege of Boston. The detailed accounts of each action throughout the war makes obvious the tremendous amount of research that was conducted before the books were written.

For each action a sketch map is included, and the battles are examined not only for the actual happenings and results but also the reasons for the decisions by the commanders involved. The author does not hesitate to point out shortcomings of the individual American soldier—however, in each case an analysis is made to determine causes for unsatisfactory performance. Comparisons between American, French, and British generals and soldiers alike should prove interesting to the officer charged with training and leading soldiers in peace and war.

Care has been taken to include humorous incidents throughout the narrative. This, coupled with disciplinary problems of both forces (including methods of meeting these problems), makes this factual account interesting and readable. For the student of military history, the extensive bibliography should serve as an excellent source of reference material.

THE DEFENSE OF WESTERN EUROPE. By Drew Middleton. 313 Pages. Appleton-Century-Crofts, Inc., New York. \$3.50.

By COL JOSEPH C. CHEDISTER, *Inf*

This dissertation on the defense of Western Europe is based on a discussion concerning the ability of the North Atlantic Treaty Organization (NATO) to deter and if necessary defeat future aggression by the Soviet Union.

The first four chapters of this book are devoted to outlining the war potential of the Soviet Union and her satellites. In a very clear and concise manner, Mr. Middleton points out in these early chapters that the Soviet Union has no intention of remaining within the confines of the area thus far conquered; that Soviet armed strength is well trained, well disciplined, and in the process of being modernized; and that the Atlantic bloc is not the only bloc in this war-weary world, meaning by this that, when the Soviet Union decides to attack, Bulgaria, Rumania, Hungary, Czechoslovakia, Poland, and Eastern Germany will attack as her allies.

The remainder of the book is devoted to an extremely well-written portrayal of the objectives of the North Atlantic Treaty Organization; the gains in strength and capability of the United States occupation forces for use in defense of Western Europe; the political, economical, and military support each of the Western European countries are giving to this organization; the possible methods and means available to NATO to deter Soviet aggression; and the economical and political failures observed during the formation and growth of the North Atlantic Treaty Organization. Mr. Middleton points out that as long as a Soviet military power exists, the West must be prepared to sacrifice and work to raise a force strong enough to deter the Soviet Union from attacking, or halt a Soviet onslaught until the industrial strength of the United

States and Western Europe can mobilize to defeat the Soviet Union. He goes on to point out that Europe can be mobilized to defeat the Soviet Union, however, this strength is not now mobilized and it is apparent that it will not be mobilized short of actual war. He feels that it is impractical to maintain European defense on a basis that the Soviet Union is going to attack tomorrow, but that the NATO organization has reached a strength and capability that can presently stop a rush to the Atlantic by the Soviet armies.

Mr. Middleton's views are optimistic concerning the ability of a more or less united Western Europe supported by the United States being able to deter Soviet aggression. However, he feels that the United States, in the eyes of the people of Western Europe, no longer represent the vision of political and economic freedom as it did 15 to 20 years ago, and further, until all Europeans freely accept the United States as the moral leader of the free world, the rearmament and union of Europe will be incomplete.

Many of the thoughts advanced by the author have been presented many times before through the media of others books, newspapers, and magazines, but not with the same orderliness that appears in this treatise. The reader will find, while reading this book, a well-condensed, well-organized summary of ideas and thoughts pertaining to the important question of defense of Western Europe.

Finally, this book provides an interesting and timely appraisal of the conditions in Western Europe and the success of NATO today.

TROOPERS WITH CUSTER. By E. A. Brinninstool. 343 Pages. The Stackpole Company, Harrisburg, Pa. \$5.00.

EPICS OF ESPIONAGE. By Bernard Newman. 270 Pages. Philosophical Library, Inc., New York. \$4.50.

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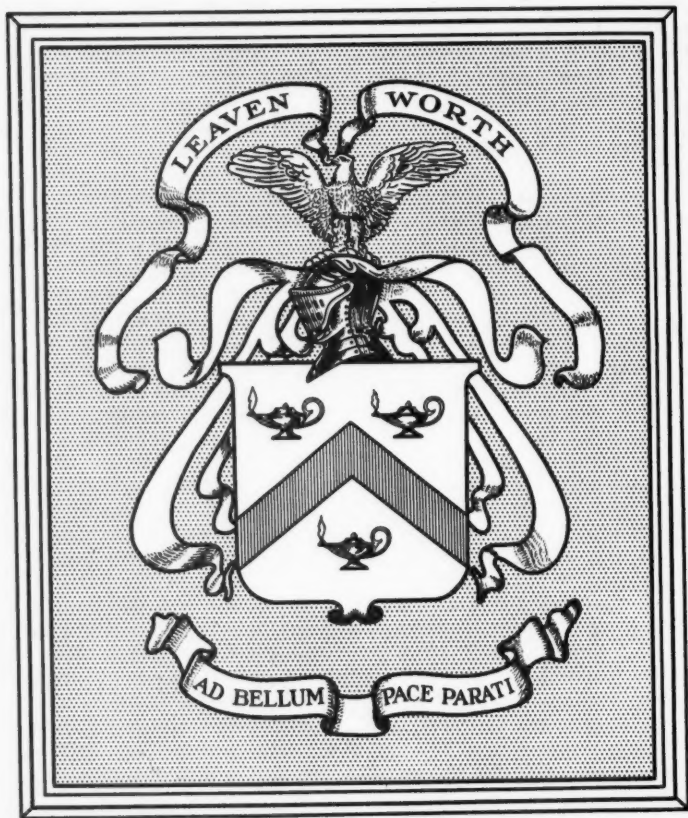
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